

=> file reg

FILE 'REGISTRY' ENTERED AT 13:54:10 ON 05 MAY 2005
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=> d his

FILE 'HCAPLUS' ENTERED AT 13:09:48 ON 05 MAY 2005

L1 128 S CELLA J?/AU
 L2 2486 S TELECHELIC?
 L3 1 S L1 AND L2
 SEL L3 1 RN

FILE 'REGISTRY' ENTERED AT 13:10:36 ON 05 MAY 2005

L4 22 S E1-E22
 L5 14 S L4 AND PMS/CI
 SEL L5 8,10,11,12,14 RN
 L6 5 S E23-E27

FILE 'HCA' ENTERED AT 13:19:14 ON 05 MAY 2005

L7 1 S L6

FILE 'REGISTRY' ENTERED AT 13:19:22 ON 05 MAY 2005

ACT TRU470/Q

L8 STR
 L9 STR
 L10 SCR 2043
 L11 STR
 L12 STR
 L13 QUE ((L8 AND L11) OR (L12 AND L9)) AND L10

L14 0 S L13

FILE 'LREGISTRY' ENTERED AT 13:20:20 ON 05 MAY 2005

L15 STR

FILE 'REGISTRY' ENTERED AT 13:26:58 ON 05 MAY 2005

L16 50 S L15 AND L10
 L17 7050 S L15 AND L10 FUL
 DEL TRU470/Q
 SAV TEM L17 TRU470/A
 L18 0 S ((L8 AND L11) OR (L12 AND L9)) SSS SAM SUB=L17
 L19 41 S ((L8 AND L11) OR (L12 AND L9)) SSS FUL SUB=L17

SAV L19 TRU470A/A

FILE 'HCA' ENTERED AT 13:30:38 ON 05 MAY 2005

L20 22 S L19

FILE 'LREGISTRY' ENTERED AT 13:30:47 ON 05 MAY 2005

L21 STR

FILE 'REGISTRY' ENTERED AT 13:36:42 ON 05 MAY 2005

L22 50 S L21 SSS SAM SUB=L17

L23 STR

L24 0 S L21 AND L23 SSS SAM SUB=L17

L25 11 S L21 AND L23 SSS FUL SUB=L17

SAV L25 TRU470B/A

L26 44 POLYLINK L19

L27 15 POLYLINK L25

FILE 'HCA' ENTERED AT 13:43:36 ON 05 MAY 2005

L28 22 S L26

L29 9 S L27

FILE 'REGISTRY' ENTERED AT 13:44:04 ON 05 MAY 2005

L30 501 S L17 AND B/ELS AND X/ELS

L31 50 S L21 SSS SAM SUB=L17

L32 1720 S L21 SSS FUL SUB=L17

SAV L32 TRU470C/A

L33 15 S L32 AND L30

L34 33 POLYLINK L33

FILE 'HCA' ENTERED AT 13:46:42 ON 05 MAY 2005

L35 37 S L34

L36 20 S L33

L37 11 S L34/P

L38 9 S L37 NOT L29

L39 2 S L29 AND L37

L40 9 S L29 OR L39

L41 9 S L37 NOT L40

L42 31 S (L28 OR L36) NOT (L40 OR L41)

L43 15 S L35 NOT (L40 OR L41 OR L42)

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L45 9 S L41 AND (1900-2003/PY OR 1900-2003/PRY)

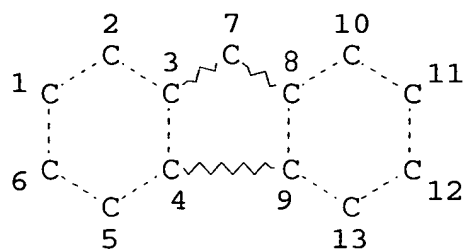
L46 28 S L42 AND (1900-2003/PY OR 1900-2003/PRY)

L47 15 S L43 AND (1900-2003/PY OR 1900-2003/PRY)

FILE 'REGISTRY' ENTERED AT 13:54:10 ON 05 MAY 2005

=> d l19 que stat

L8 STR



B 16

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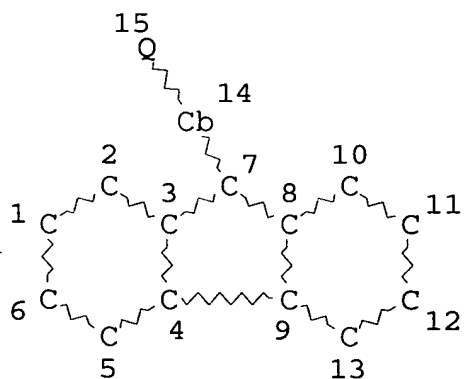
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 DEFAULT ECLEVEL IS LIMITED

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STEREO ATTRIBUTES: NONE

L9 STR



B 18

NODE ATTRIBUTES:

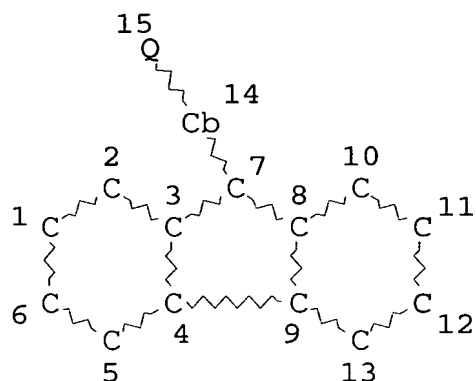
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STEREO ATTRIBUTES: NONE

L10 SCR 2043
 L11 STR



X 18

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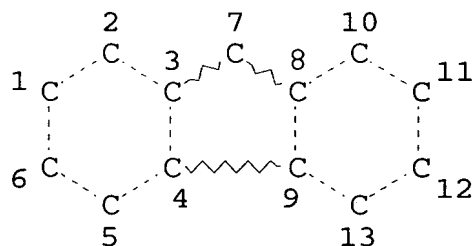
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STEREO ATTRIBUTES: NONE

L12 STR



X 16

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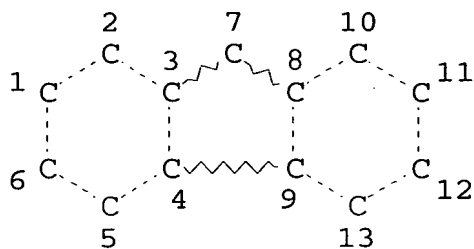
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STEREO ATTRIBUTES: NONE

L15 STR



NODE ATTRIBUTES:
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 DEFAULT ECLEVEL IS LIMITED

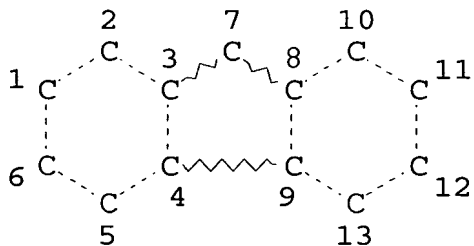
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STEREO ATTRIBUTES: NONE
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 L19 41 SEA FILE=REGISTRY SUB=L17 SSS FUL ((L8 AND L11) OR (L12
 AND L9))

100.0% PROCESSED 542 ITERATIONS
 SEARCH TIME: 00.00.01

41 ANSWERS

=> d 125 que stat
 L10 SCR 2043
 L15 STR



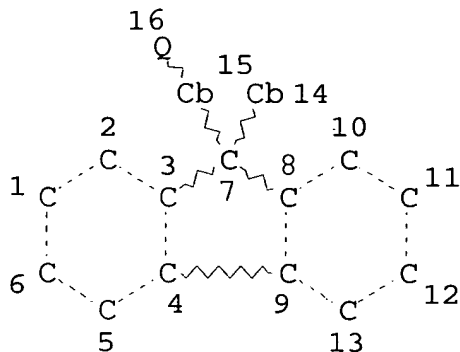
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 NUMBER OF NODES IS 13

STEREO ATTRIBUTES: NONE

L17 7050 SEA FILE=REGISTRY SSS FUL L15 AND L10

L21 STR



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DEFAULT ECLEVEL IS LIMITED

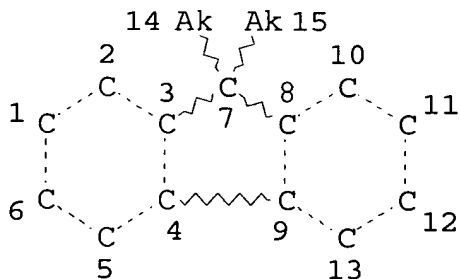
GRAPH ATTRIBUTES:

RSPEC I

NUMBER OF NODES IS 16

STEREO ATTRIBUTES: NONE

L23 STR



NODE ATTRIBUTES:

DEFAULT MLEVEL IS ATOM

DEFAULT ECLEVEL IS LIMITED

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RING(S) ARE ISOLATED OR EMBEDDED

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STEREO ATTRIBUTES: NONE

L25 11 SEA FILE=REGISTRY SUB=L17 SSS FUL L21 AND L23

100.0% PROCESSED 6942 ITERATIONS
SEARCH TIME: 00.00.01

11 ANSWERS

=> file hca

FILE 'HCA' ENTERED AT 14:07:32 ON 05 MAY 2005

USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.

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=> d l44 1-8 cbib abs hitstr hitrn

L44 ANSWER 1 OF 8 HCA COPYRIGHT 2005 ACS on STN

142:356044 Telechelic emissive oligomers and polymers derived therefrom.

Cella, James A. (USA). U.S. Pat. Appl. Publ. US 2005075473 A1

20050407, 14 pp. (English). CODEN: USXXCO. APPLICATION: US

2003-680470 20031007.

AB The present invention is directed to a telechelic emissive, semi-conductive end-functionalized oligomers which can be polycondensed by a variety of conventional techniques to afford emissive polymers. The polymers are useful as active layers in light emitting as well as photovoltaic devices.

IT 849222-42-0P 849222-43-1P 849222-44-2P

849222-45-3P 849222-46-4P 849222-47-5P

849222-48-6P 849222-49-7P

(telechelic emissive oligomers and polymers derived therefrom)

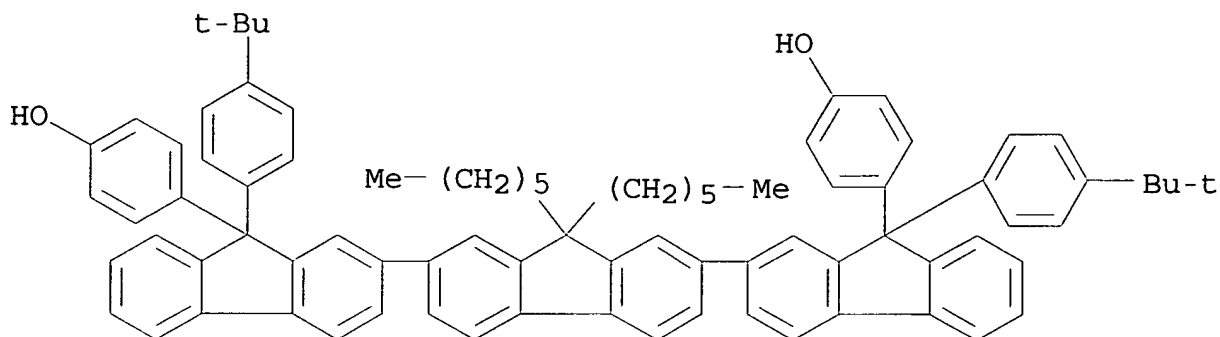
RN 849222-42-0 HCA

CN Carbonic dichloride, polymer with 4,4'-[9,9''-bis[4-(1,1-dimethylethyl)phenyl]-9',9'-dihexyl[2,2':7':2''-ter-9H-fluorene]-9,9''-diyl]bis[phenol] (9CI) (CA INDEX NAME)

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CRN 849222-41-9

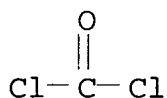
CMF C83 H82 O2



CM 2

CRN 75-44-5

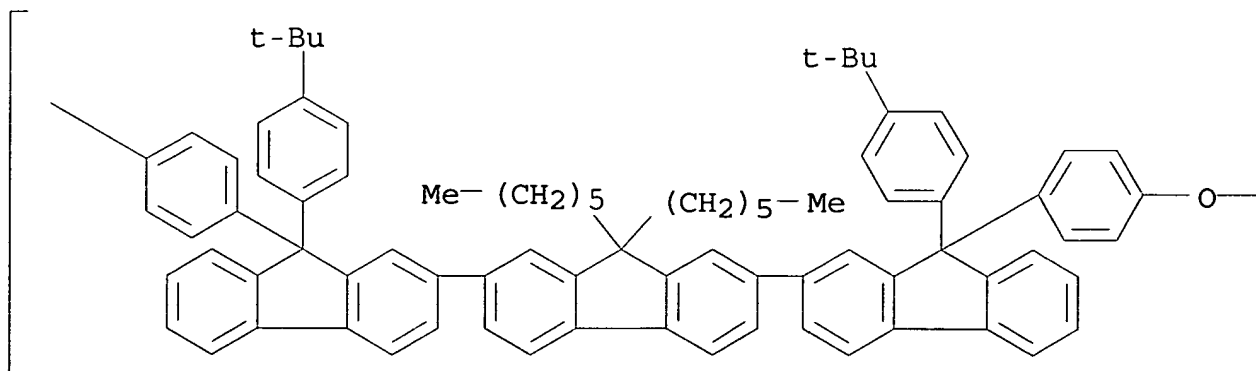
CMF C Cl2 O



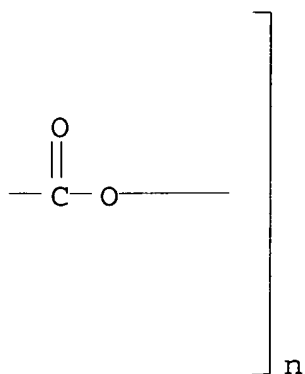
RN 849222-43-1 HCA

CN Poly[oxycarbonyloxy-1,4-phenylene[9,9''-bis[4-(1,1-dimethylethyl)phenyl]-9',9'-dihexyl[2,2':7':2''-ter-9H-fluorene]-9,9''-diyl]-1,4-phenylene] (9CI) (CA INDEX NAME)

PAGE 1-A



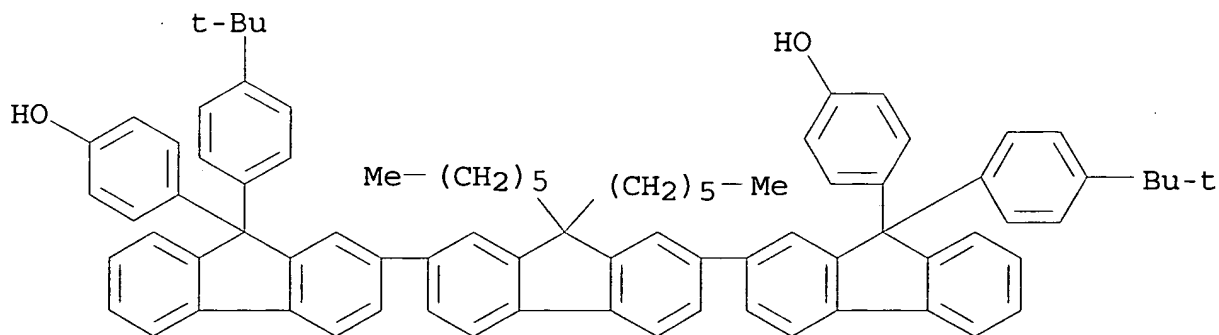
PAGE 1-B



RN 849222-44-2 HCA
 CN Phenol, 4,4'-[9,9''-bis[4-(1,1-dimethylethyl)phenyl]-9',9'-
 dihexyl[2,2':7':2''-ter-9H-fluorene]-9,9''-diyl]bis-, homopolymer
 (9CI) (CA INDEX NAME)

CM 1

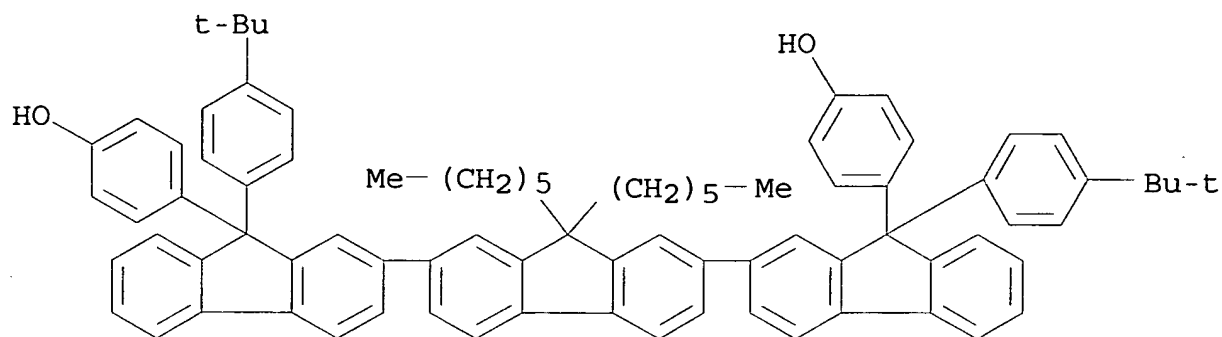
CRN 849222-41-9
 CMF C83 H82 O2



RN 849222-45-3 HCA
 CN Carbonic dichloride, polymer with 4,4'-[9,9''-bis[4-(1,1-
 dimethylethyl)phenyl]-9',9'-dihexyl[2,2':7':2''-ter-9H-fluorene]-
 9,9''-diyl]bis[phenol] and 4,4'-(1-methylethylidene)bis[phenol]
 (9CI) (CA INDEX NAME)

CM 1

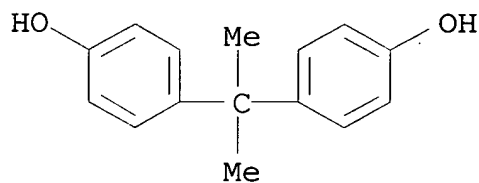
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 CMF C83 H82 O2



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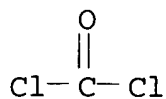
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CM 3

CRN 75-44-5

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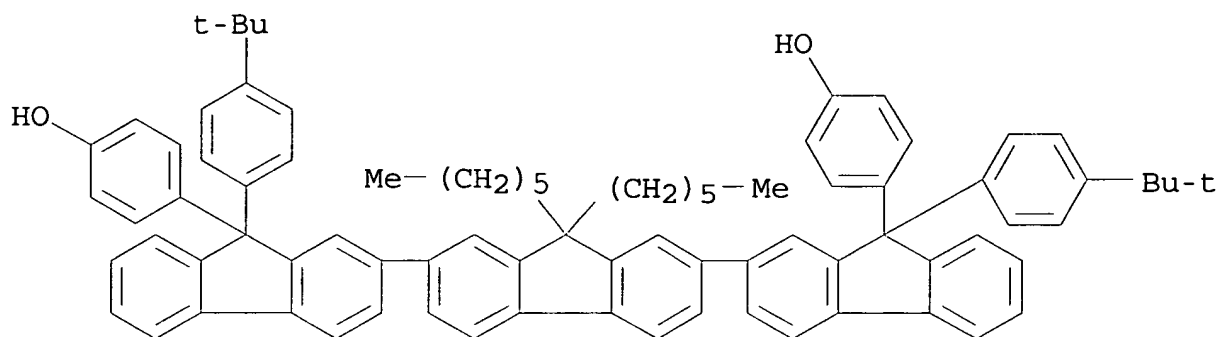
RN 849222-46-4 HCA

CN Carbonochloridic acid, (1-methylethylidene)di-4,1-phenylene ester, polymer with 4,4'-[9,9''-bis[4-(1,1-dimethylethyl)phenyl]-9',9'-dihexyl[2,2':7':2''-ter-9H-fluorene]-9,9''-diyl]bis[phenol] (9CI) (CA INDEX NAME)

CM 1

CRN 849222-41-9

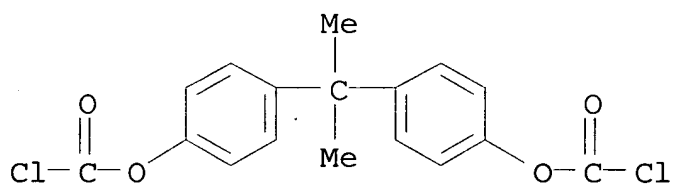
CMF C83 H82 O2



CM 2

CRN 2024-88-6

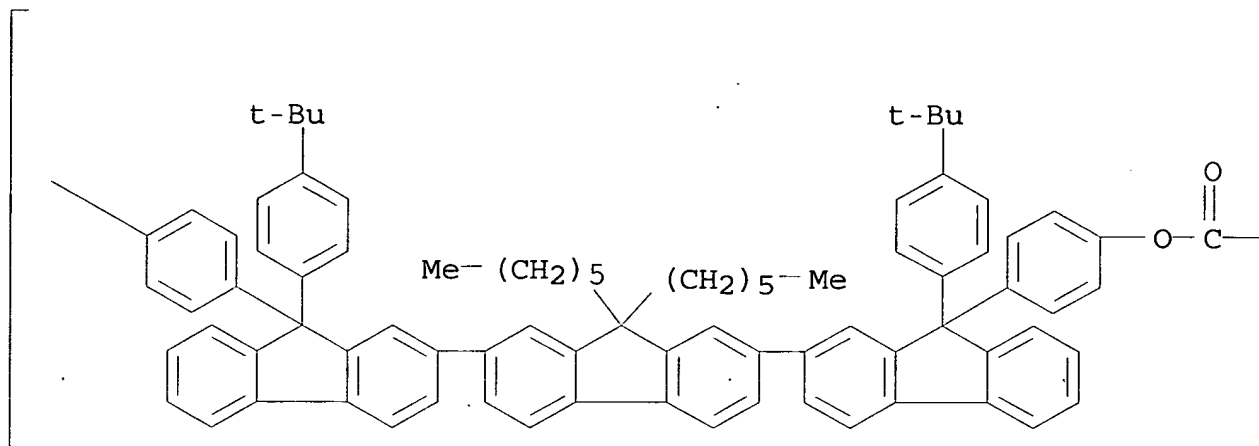
CMF C17 H14 Cl2 O4



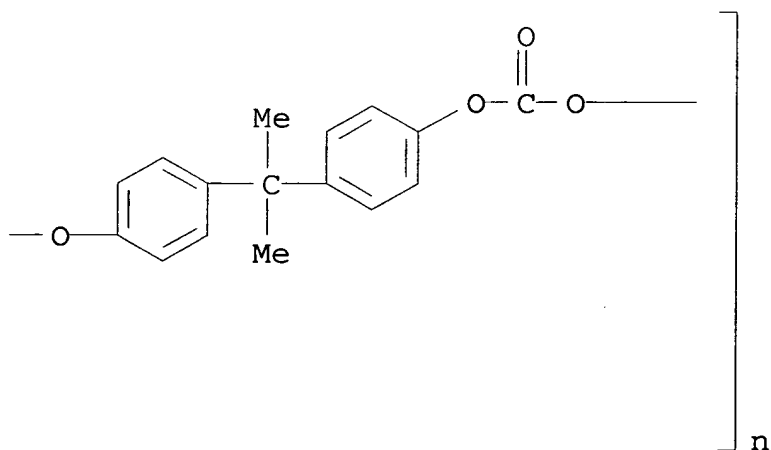
RN 849222-47-5 HCA

CN Poly[oxycarbonyloxy-1,4-phenylene(1-methylethylidene)-1,4-phenyleneoxycarbonyloxy-1,4-phenylene[9,9''-bis[4-(1,1-dimethylethyl)phenyl]-9',9'-dihexyl[2,2':7':2''-ter-9H-fluorene]-9,9''-diyl]-1,4-phenylene] (9CI) (CA INDEX NAME)

PAGE 1-A



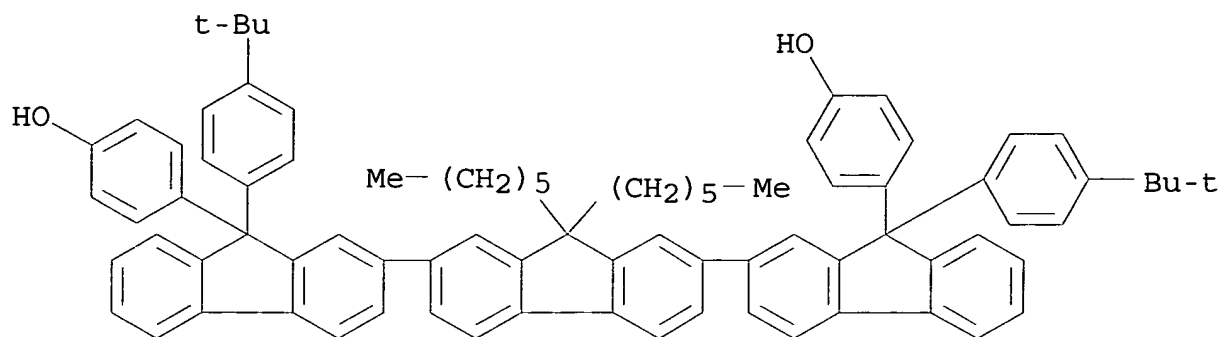
PAGE 1-B



RN 849222-48-6 HCA
 CN Phenol, 4,4'-[9,9''-bis[4-(1,1-dimethylethyl)phenyl]-9',9'-
 dihexyl[2,2':7':2''-ter-9H-fluorene]-9,9''-diyl]bis-, polymer with
 dichlorodiphenylsilane (9CI) (CA INDEX NAME)

CM 1

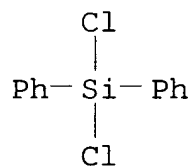
CRN 849222-41-9
 CMF C83 H82 O2



CM 2

CRN 80-10-4

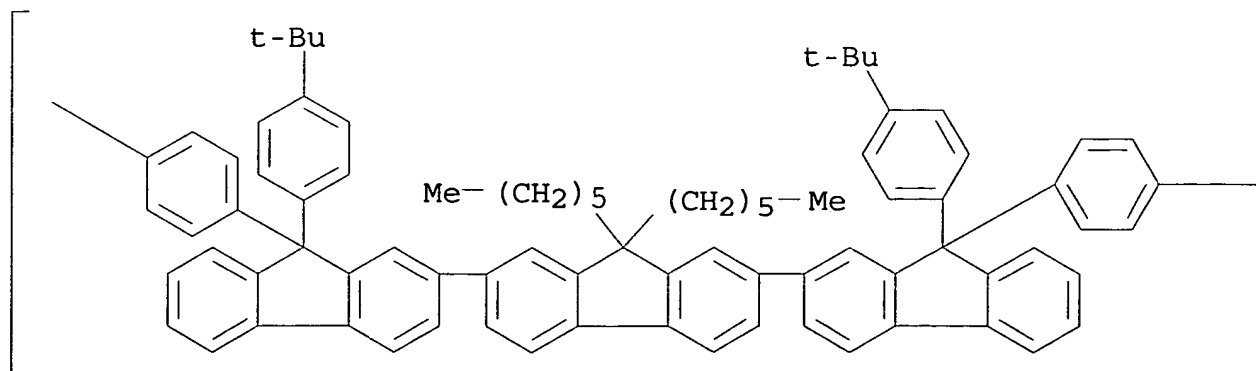
CMF C12 H10 Cl2 Si



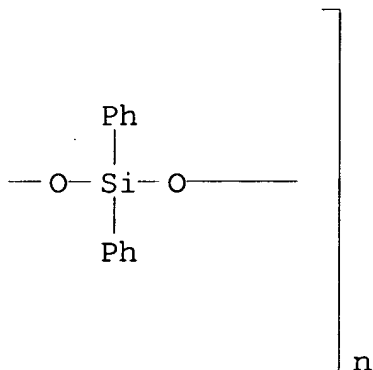
RN 849222-49-7 HCA

CN Poly[oxy(diphenylsilylene)oxy-1,4-phenylene[9,9''-bis[4-(1,1-dimethylethyl)phenyl]-9',9'-dihexyl[2,2':7':2''-ter-9H-fluorene]-9,9''-diyl]-1,4-phenylene] (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B

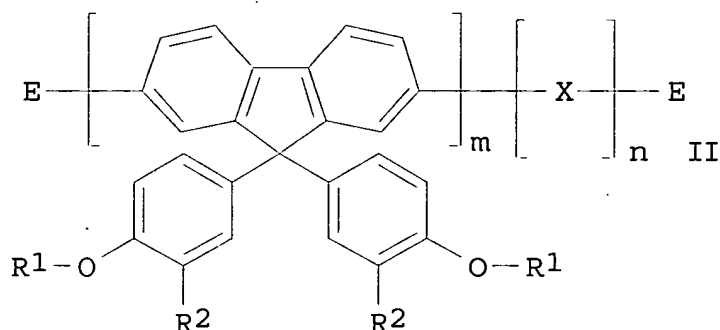
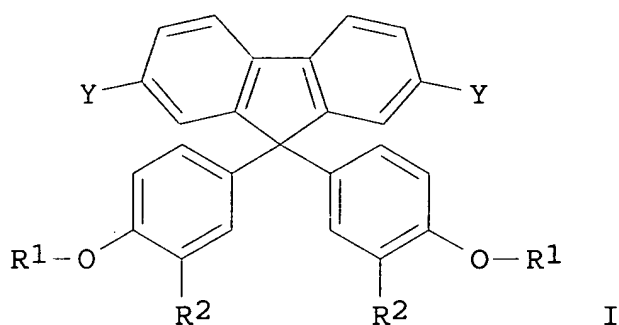


IT 849222-42-0P 849222-43-1P 849222-44-2P
 849222-45-3P 849222-46-4P 849222-47-5P
 849222-48-6P 849222-49-7P

(telechelic emissive oligomers and polymers derived therefrom)

L44 ANSWER 2 OF 8 HCA COPYRIGHT 2005 ACS on STN
 140:294494 2,7-Dibromo-9,9-di(3-substituted-4-hydroxyphenyl)fluorenes,
 their manufacture, and their oligomers or polymers for organic
 electroluminescent devices. Yamamoto, Ryuichi; Kitamura, Naoyuki
 (JFE Chemical Corporation, Japan). Jpn. Kokai Tokkyo Koho JP
 2004091330 A2 20040325, 15 pp. (Japanese). CODEN: JKXXAF.
 APPLICATION: JP 2002-250948 20020829.

GI



AB The fluorenes I [Y = Br; R₁ = H, (.gtoreq.1 hetero atom-contg.) C1-22 hydrocarbyl; R₂ = C1-6 hydrocarbyl] are manufd. by treatment of 2,7-dibromo-9-fluorenone with benzenes bearing R₁O and R₂ (R₁, R₂ = same as above) on position 1 and 2, resp., or bromination of I (Y = H, R₁, R₂ = same as above). The oligomers and polymers are II (R₁, R₂ = same as above; X = dehydrogenation residue of hydrocarbon dihalides other than I; E = H, halo, aryl, alkyl; m .gtoreq.2 when n = 0; m .gtoreq.1 when n .noteq. 0). Emitter, electron-transporting, or hole-transporting layers are manufd. from solns. of II without pptn. or crystn.

IT 675603-48-2P

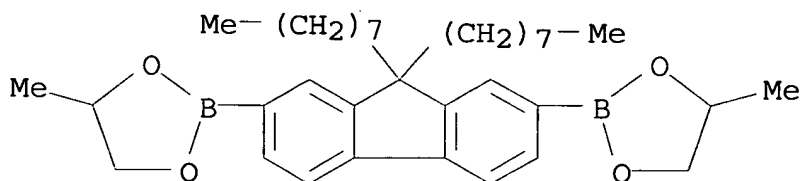
(manuf. of dibromodi(hydroxyphenyl)fluorenes and their oligomers or polymers for org. electroluminescent devices)

RN 675603-48-2 HCA

CN Phenol, 4,4'-(2,7-dibromo-9H-fluoren-9-ylidene)bis[2-methyl-, polymer with 2,2'-(9,9-dioctyl-9H-fluorene-2,7-diyl)bis[4-methyl-1,3,2-dioxaborolane] (9CI) (CA INDEX NAME)

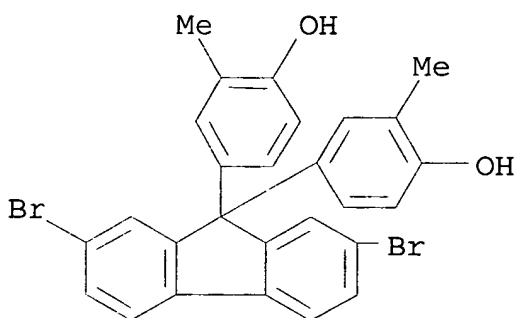
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CRN 675603-47-1
CMF C35 H52 B2 O4



CM 2

CRN 675603-44-8
CMF C27 H20 Br2 O2



IT 675603-48-2P

(manuf. of dibromodi(hydroxyphenyl)fluorenes and their oligomers or polymers for org. electroluminescent devices)

L44 ANSWER 3 OF 8 HCA COPYRIGHT 2005 ACS on STN

138:90177 Synthesis and Characterization of Dendronized Polyfluorenes. Chou, Chia-Hung; Shu, Ching-Fong (Department of Applied Chemistry, National Chiao Tung University, Hsin-Chu, 30035, Taiwan). *Macromolecules*, 35(26), 9673-9677 (English) 2002. CODEN: MAMOBX. ISSN: 0024-9297. Publisher: American Chemical Society.

AB A series of polyfluorenes contg. pendant poly(benzyl ether) dendritic wedges of different generations was synthesized via the macromonomer approach, and then they were characterized by their structures and properties. The dendritic monomers were prep'd. by coupling benzyl bromide functionalized dendrons with 9,9-bis(4-hydroxyphenyl)-2,7-dibromofluorene and were subsequently copolymd. with a 9,9-dioctylfluorene diboronate deriv. by the Suzuki coupling reaction to give the target alternating copolymers. Photophys. studies reveal that the photoluminescent properties of the dendronized polymers are greatly affected by the size of the

dendritic side chains. Polymers appended with higher generation dendrons exhibit an enhanced photoluminescence efficiency and an improved luminescent stability. This is attributed to the shielding effect induced by the bulky dendrimer side chains, which prevent self-quenching and suppress the formation of aggregates/excimers.

IT 484690-44-0P

(dendritic; synthesis and characterization of Frechet dendrimer-bearing polyfluorenes)

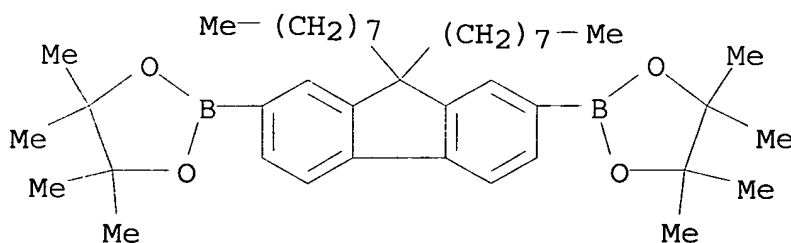
RN 484690-44-0 HCA

CN 1,3-Benzenediol, 5-(bromomethyl)-, polymer with 4,4'-(2,7-dibromo-9H-fluoren-9-ylidene)bis[phenol] and 2,2'-(9,9-dioctyl-9H-fluorene-2,7-diyl)bis[4,4,5,5-tetramethyl-1,3,2-dioxaborolane], graft (9CI) (CA INDEX NAME)

CM 1

CRN 196207-58-6

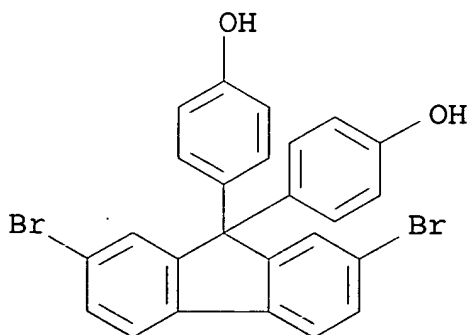
CMF C41 H64 B2 O4



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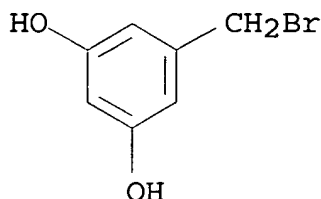
CRN 169169-89-5

CMF C25 H16 Br2 O2



CM 3

CRN 33617-40-2
CMF C7 H7 Br O2



IT 484690-44-0P

(dendritic; synthesis and characterization of Frechet dendrimer-bearing polyfluorenes)

L44 ANSWER 4 OF 8 HCA COPYRIGHT 2005 ACS on STN

131:32382 Thermally stable poly(fluorene) copolymers for blue-light emission. Miller, R. D.; Klaerner, G.; Fuhrer, T.; Kreyenschmidt, M.; Kwak, J.; Lee, V.; Chen, W.-D.; Scott, J. C. (IBM Research Division, Almaden Research Center, San Jose, CA, 95120, USA). MCLC S&T, Section B: Nonlinear Optics, 20(1-4), 269-295 (English) 1999. CODEN: MCLOEB. ISSN: 1058-7268. Publisher: Gordon & Breach Science Publishers.

AB A variety of fluorene-contg. homo- and copolymers were prepd. by the Ni-mediated polymn. of various dibromoarylenes. The conjugation length in a poly(fluorene) homopolymer was estd. to be .apprx.12 fluorene units by absorption measurements. The electronic properties of the copolymers may be tuned somewhat by the choice of comonomer structure and compn. The formation of long wavelength excimer emission upon thermal annealing is ubiquitous among poly(fluorene) materials. This situation is exacerbated in electroluminescence studies. The incorporation of as little as 15% of anthracene attached through the 9,10-positions into the high-mol.-wt. polymer completely suppresses the excimer formation in photoluminescence and electroluminescence. Di-n-hexylfluorene/anthracene copolymers (DHF/ANT) contg. either electron donating or electron attracting substituents incorporated into the backbone show spectral shifts (red for donors and blue for acceptors) and a colorfast EL emission. The combination of both a donor and an acceptor randomly incorporated into the DHF/ANT main chain showed stable EL emission and an efficiency which exceeds that of the DHF/ANT copolymers alone.

IT 200720-65-6

(optical properties of thermally stable poly(fluorene) copolymers for blue-light emission)

RN 200720-65-6 HCA

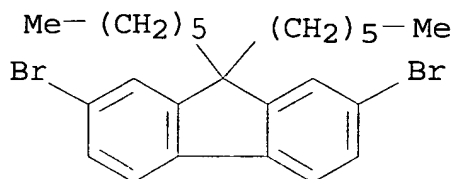
CN 9H-Fluorene, 2,7-dibromo-9,9-dihexyl-, polymer with

9,9-bis(4-bromophenyl)-9H-fluorene (9CI) (CA INDEX NAME)

CM 1

CRN 189367-54-2

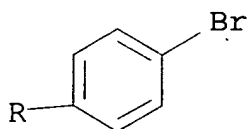
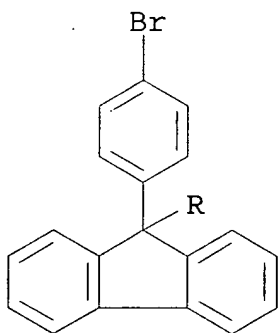
CMF C25 H32 Br2



CM 2

CRN 128406-10-0

CMF C25 H16 Br2



IT 200720-65-6

(optical properties of thermally stable poly(fluorene) copolymers for blue-light emission)

L44 ANSWER 5 OF 8 HCA COPYRIGHT 2005 ACS on STN

130:139799 Aromatic polycarbonate resins and method for their manufacture. Kawamura, Shinichi; Sasaki, Masaomi; Nagai, Kazukiyo; Tanaka, Chiaki; Suzuka, Susumu; Morooka, Katsuhiko; Katayama, Akira (Ricoh Co., Ltd., Japan; Hodogaya Chemical Co., Ltd.). Jpn. Kokai

Tokkyo Koho JP 11005836 A2 19990112 Heisei, 27 pp.
(Japanese). CODEN: JKXXAF. APPLICATION: JP 1998-125337 19980420.
PRIORITY: JP 1997-118893 19970422.

AB The resins having good photocond., useful as charge transfer materials for photosensitive applications are polycarbonates bearing unique units derived from diol compds. such as N-{4-[2,2-bis(4-hydroxyphenyl)vinyl]phenyl}-N-(4-methylphenyl)-N-(9,9-dimethyl-2-fluorenyl)amine (I), and optionally other bisphenols. Thus, reacting I and bisphenol A with triphosgene in the presence of 4-tert-butylphenol, NaOH and Et₃N gave a polycarbonate.

IT **220105-50-0P**
(arom. polycarbonate resins and method for manuf.)

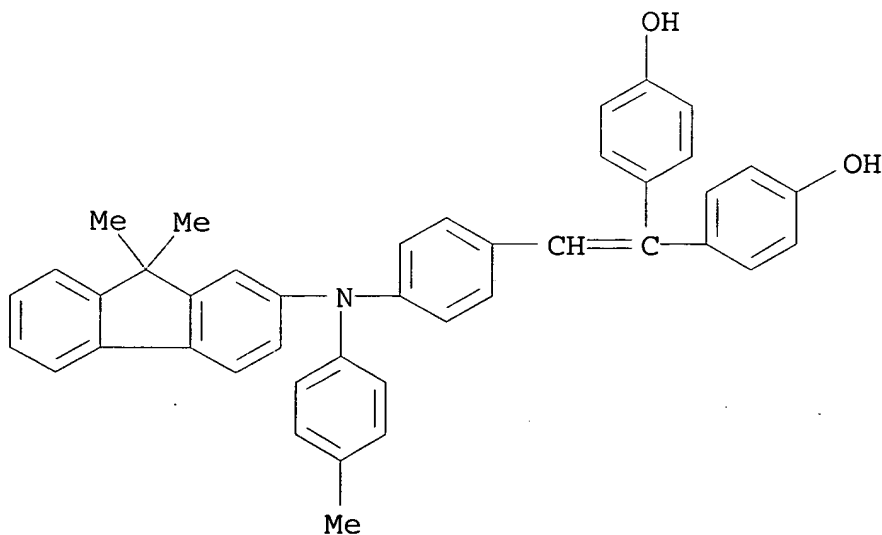
RN 220105-50-0 HCA

CN Phenol, 4,4'-(9H-fluoren-9-ylidene)bis[2-methyl-, polymer with bis(trichloromethyl) carbonate and 4,4'-[[4-[(9,9-dimethyl-9H-fluoren-2-yl)(4-methylphenyl)amino]phenyl]ethenylidene]bis[phenol] (9CI) (CA INDEX NAME)

CM 1

CRN 219768-85-1

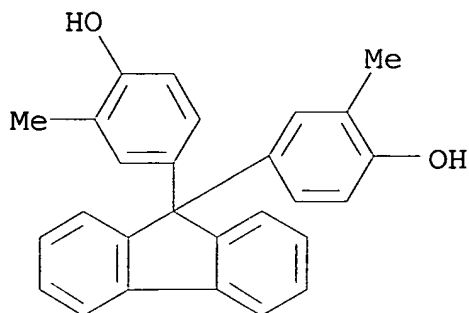
CMF C42 H35 N O2



CM 2

CRN 88938-12-9

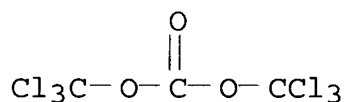
CMF C27 H22 O2



CM 3

CRN 32315-10-9

CMF C3 C16 O3



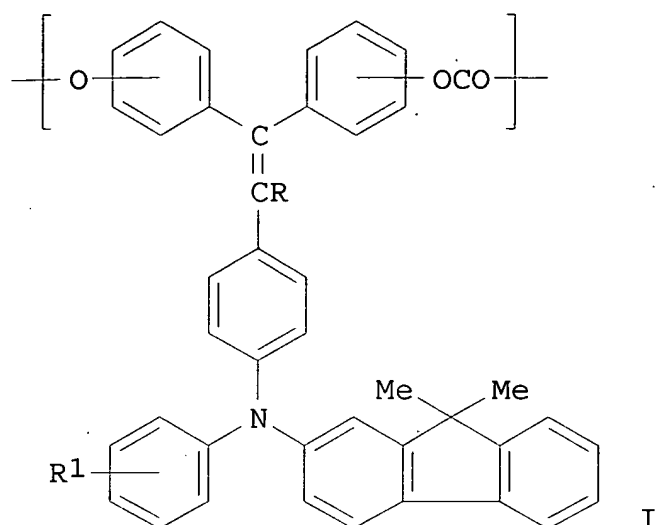
IT 220105-50-0P

(arom. polycarbonate resins and method for manuf.)

L44 ANSWER 6 OF 8 HCA COPYRIGHT 2005 ACS on STN

130:131734 Electrophotographic photoreceptor containing aromatic polycarbonate resin. Kawamura, Shinichi; Sasaki, Masaomi; Nagai, Kazukiyo; Tanaka, Chiaki; Suzuka, Susumu; Morooka, Katsuhiko; Katayama, Akira (Ricoh Co., Ltd., Japan; Hodogaya Chemical Co., Ltd.). Jpn. Kokai Tokkyo Koho JP 11002909 A2 19990106 Heisei, 19 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1998-101223 19980413. PRIORITY: JP 1997-97424 19970415.

GI



AB The electrophotog. photoreceptor has a light sensitive layer contg. an arom. polycarbonate resin having repeating unit I (R = H, alkyl, aryl; R1 = alkyl). The electrophotog. photoreceptor shows the high sensibility and the excellent durability.

IT **219768-97-5P**

(arom. polycarbonate resin for electrophotog. photoreceptor)

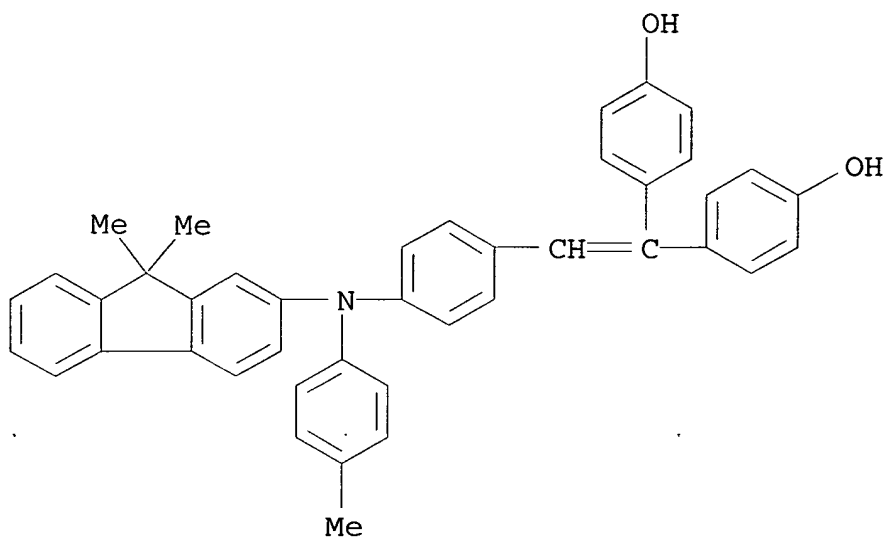
RN 219768-97-5 HCA

CN Carbonic acid, polymer with 4,4'-[[4-[(9,9-dimethyl-9H-fluoren-2-yl) (4-methylphenyl) amino]phenyl]ethenylidene]bis[phenol] and 4,4'-(9H-fluoren-9-ylidene)bis[2-methylphenol] (9CI) (CA INDEX NAME)

CM 1

CRN 219768-85-1

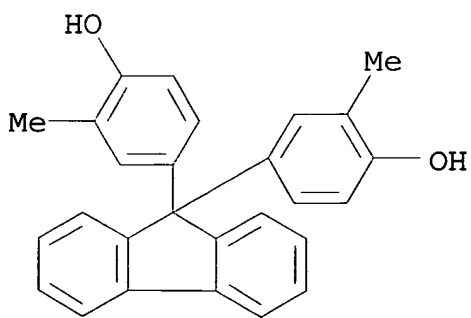
CMF C42 H35 N O2



CM 2

CRN 88938-12-9

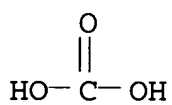
CMF C27 H22 O2



CM 3

CRN 463-79-6

CMF C H2 O3



IT 219768-97-5P

(arom. polycarbonate resin for electrophotog. photoreceptor)

L44 ANSWER 7 OF 8 HCA COPYRIGHT 2005 ACS on STN

128:115575 Thermally Stable Blue-Light-Emitting Copolymers of Poly(alkylfluorene). Kreyenschmidt, M.; Klaerner, G.; Fuhrer, T.; Ashenhurst, J.; Karg, S.; Chen, W. D.; Lee, V. Y.; Scott, J. C.; Miller, R. D. (IBM Almaden Research Center, San Jose, CA, 95120-6099, USA). Macromolecules, 31(4), 1099-1103 (English) 1998. CODEN: MAMOBX. ISSN: 0024-9297. Publisher: American Chemical Society.

AB A variety of high-mol.-wt., thermally stable, blue-light-emitting random copolymers of 9,9-di-n-hexylfluorene were prepd. by nickel(0)-mediated polymn. The copolymers are readily sol. and easily processable from org. solvents. Both the polymer and electronic properties may be tuned by selection of comonomer structure. The electronic properties also vary with compn. and film morphol. A blue-light-emitting device was prepd. using ionic salts for electrochem. doping.

IT 200720-65-6P, 9,9-Bis(4-bromophenyl)fluorene-2,7-dibromo-9,9-dihexylfluorene copolymer
(prepn. of thermally stable blue-light-emitting copolymers of poly(alkylfluorene))

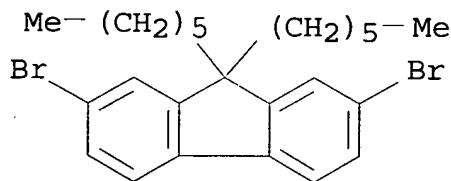
RN 200720-65-6 HCA

CN 9H-Fluorene, 2,7-dibromo-9,9-dihexyl-, polymer with 9,9-bis(4-bromophenyl)-9H-fluorene (9CI) (CA INDEX NAME)

CM 1

CRN 189367-54-2

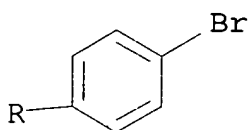
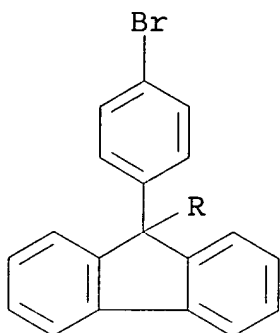
CMF C25 H32 Br2



CM 2

CRN 128406-10-0

CMF C25 H16 Br2



IT 200720-65-6P, 9,9-Bis(4-bromophenyl)fluorene-2,7-dibromo-9,9-dihexylfluorene copolymer
(prepn. of thermally stable blue-light-emitting copolymers of poly(alkylfluorene))

L44 ANSWER 8 OF 8 HCA COPYRIGHT 2005 ACS on STN

128:81621 Femtosecond study of exciton dynamics in polyfluorene statistical co-polymers in solutions and thin films. Zhang, J. Z.; Kreger, M. A.; Klaerner, G.; Kreyenschmidt, M.; Miller, R. D.; Scott, J. C. (Department of Chemistry, University of California, Santa Cruz, CA, 95064, USA). Proceedings of SPIE-The International Society for Optical Engineering, 3145(Optical Probes of Conjugated Polymers), 363-374 (English) 1997. CODEN: PSISDG. ISSN: 0277-786X. Publisher: SPIE-The International Society for Optical Engineering.

AB The formation and decay dynamics of photogenerated excitons in polyfluorene statistical copolymers in solns. and in thin films have been studied using femtosecond transient absorption spectroscopy. In soln. photoexcitation of the polymer generates primarily intrachain singlet excitons which are initially hot and then relax quickly (<200 fs) towards the equil. position in the excited state. The exciton subsequently decays following a double exponential with time consts. of 30 ps and 330 ps in toluene. The fast decay is attributable to vibrational relaxation, spectral diffusion, or internal conversion (recombination) of the exciton from the excited to the ground electronic state through tunneling or thermal-activated barrier crossing before thermalization. The slow decay is assigned to conversion of the thermalized exciton to the

ground state through both radiative and non-radiative pathways. In films the exciton dynamics are found to depend strongly on excitation intensity. At low intensity, the dynamics are similar to that in solns., with a double exponential decay with time consts. of 15 ps and 300 ps. At high intensities, a fast decay component with a time const. of 0.8 ps appears, which becomes more dominant at higher intensities. This fast decay is attributed to exciton-exciton annihilation due to high d. of excitons created. The signal in films at both low and high excitation intensities is attributable to intrachain singlet excitons, as in soln. There is no evidence for formation of interchain bound polaron pairs in films at low intensities. At high intensities, the possibility cannot be ruled out completely, esp. in relation to the fast decay. If bound polaron pairs are formed as indicated by the fast decay, they must be generated as a result of interaction between excitons on different chains since they are absent at low power, and they must be created and then decay within about 1 ps.

IT 200720-65-6

(femtosecond study of exciton dynamics in polyfluorene statistical copolymers in solns. and thin films)

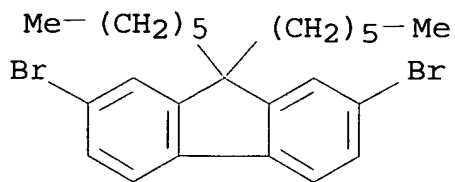
RN 200720-65-6 HCA

CN 9H-Fluorene, 2,7-dibromo-9,9-dihexyl-, polymer with 9,9-bis(4-bromophenyl)-9H-fluorene (9CI) (CA INDEX NAME)

CM 1

CRN 189367-54-2

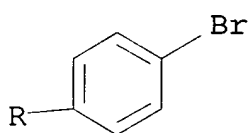
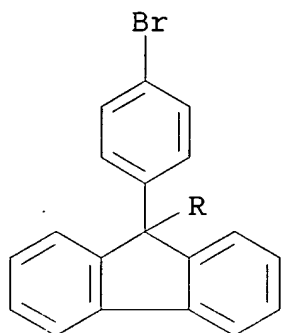
CMF C25 H32 Br2



CM 2

CRN 128406-10-0

CMF C25 H16 Br2



IT 200720-65-6

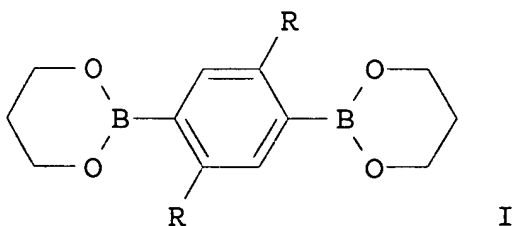
(femtosecond study of exciton dynamics in polyfluorene statistical copolymers in solns. and thin films)

=> d 145 1-9 cbib abs hitstr hitrn

L45 ANSWER 1 OF 9 HCA COPYRIGHT 2005 ACS on STN

136:118879 Copolymer semiconductor materials made of oligophenylene units and at least one fluorene unit. Faber, Rene; Nuyken, Oskar; Stasko, Andrej (Siemens Aktiengesellschaft, Germany). PCT Int. Appl. WO 2002004543 A1 20020117, 21 pp. DESIGNATED STATES: W: JP, US; RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR. (German). CODEN: PIXXD2. APPLICATION: WO 2001-DE2444 20010702. PRIORITY: DE 2000-10033111 20000707.

GI



AB The invention relates to copolymers having the title units with phenylene units bonded to the 9-position of the fluorene units and semi-conductor properties, and being esp. used in org. light diodes (OLEDs). The conjugation length of said semi-conductor materials is independent of the degree of polymn. A typical copolymer was manufd. by polymn. of 1.9 g 9,9-bis(4-bromophenyl)fluorene 4 days at 80.degree. with 0.98 g borate ester I in THF in the presence of Pd(PPh₃)₄ and K₂CO₃.

IT 328388-05-2P 328388-06-3P 328388-07-4P
328388-08-5P 328388-09-6P 328388-10-9P
328388-11-0P 389806-20-6P

(copolymer semiconductor materials made of oligophenylene units and at least one fluorene unit)

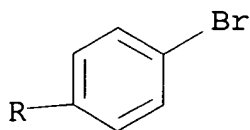
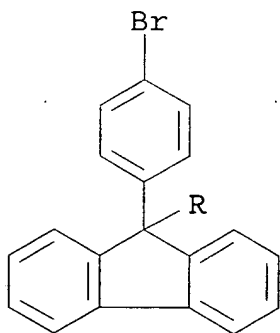
RN 328388-05-2 HCA

CN 1,3,2-Dioxaborinane, 2,2'-(1,4-phenylene)bis-, polymer with 9,9-bis(4-bromophenyl)-9H-fluorene (9CI) (CA INDEX NAME)

CM 1

CRN 128406-10-0

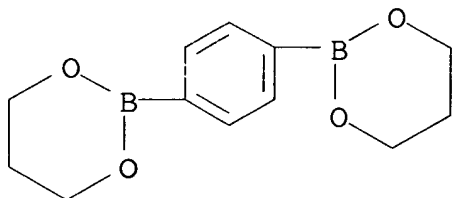
CMF C25 H16 Br2



CM 2

CRN 96433-09-9

CMF C12 H16 B2 O4



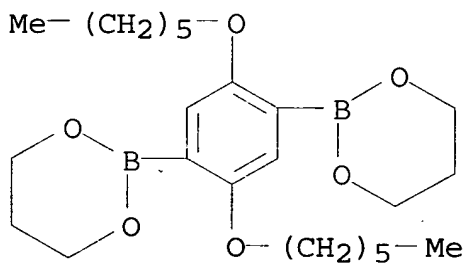
RN 328388-06-3 HCA

CN 1,3,2-Dioxaborinane, 2,2'-[2,5-bis(hexyloxy)-1,4-phenylene]bis-,
polymer with 9,9-bis(4-bromophenyl)-9H-fluorene (9CI) (CA INDEX
NAME)

CM 1

CRN 241802-45-9

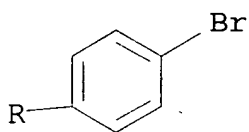
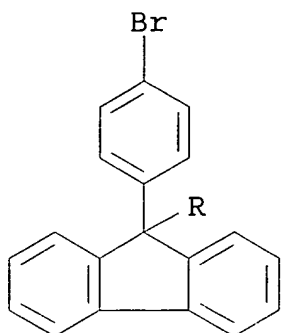
CMF C24 H40 B2 O6



CM 2

CRN 128406-10-0

CMF C25 H16 Br2

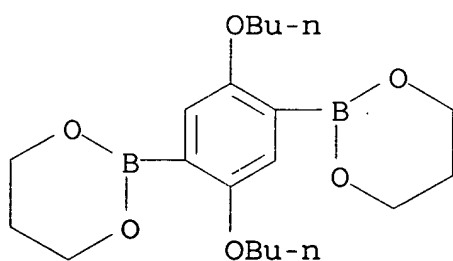


RN 328388-07-4 HCA
 CN 1,3,2-Dioxaborinane, 2,2'-(2,5-butoxy-1,4-phenylene)bis-, polymer
 with 9,9-bis(4-bromophenyl)-9H-fluorene (9CI) (CA INDEX NAME)

CM 1

CRN 328388-02-9

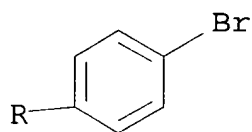
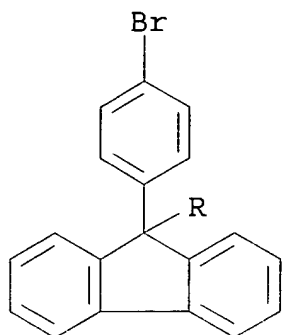
CMF C20 H32 B2 O6



CM 2

CRN 128406-10-0

CMF C25 H16 Br2



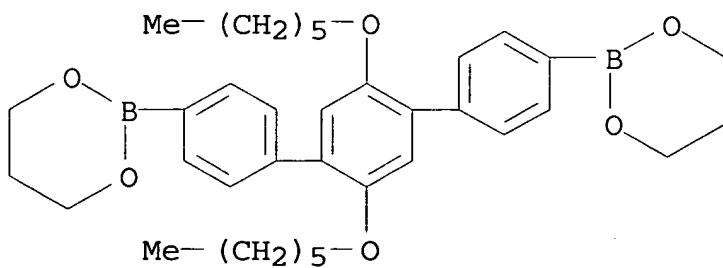
RN 328388-08-5 HCA

CN 1,3,2-Dioxaborinane, 2,2'-[2',5'-bis(hexyloxy) [1,1':4',1''-terphenyl]-4,4''-diyl]bis-, polymer with 9,9-bis(4-bromophenyl)-9H-fluorene (9CI) (CA INDEX NAME)

CM 1

CRN 328388-04-1

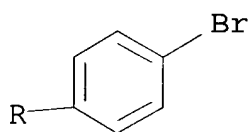
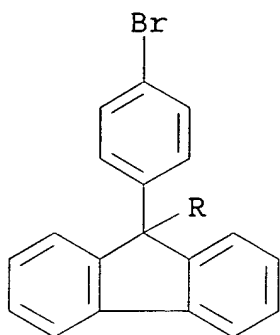
CMF C36 H48 B2 O6



CM 2

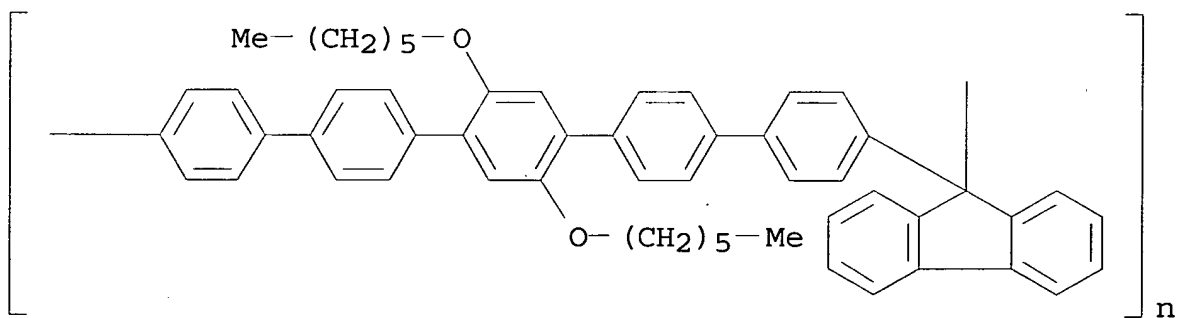
CRN 128406-10-0

CMF C25 H16 Br2



RN 328388-09-6 HCA

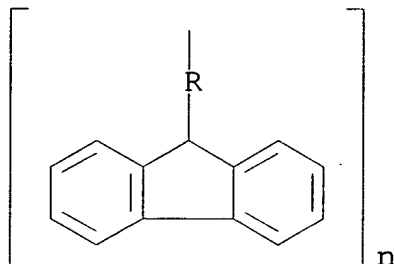
CN Poly[9H-fluoren-9-ylidene[2'',5''-bis(hexyloxy) [1,1':4',1'':4'',1''':4''',1''''-quinquephenyl]-4,4''''-diyl]] (9CI) (CA INDEX NAME)



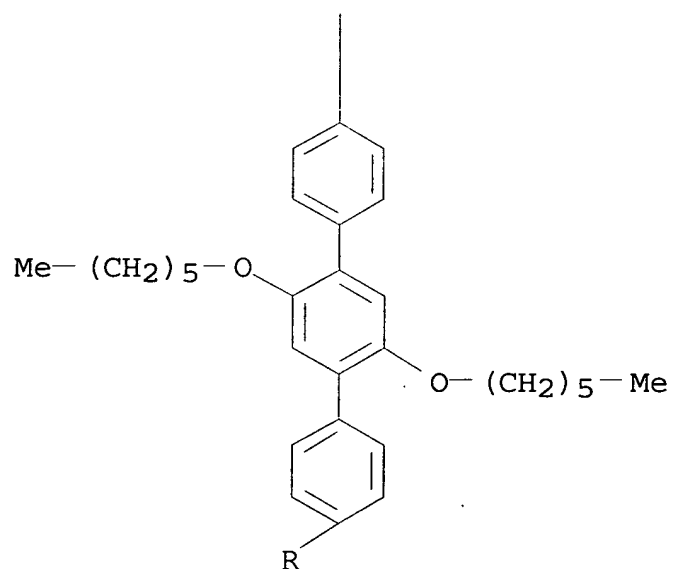
RN 328388-10-9 HCA

CN Poly[9H-fluoren-9-ylidene[2',5'-bis(hexyloxy) [1,1':4',1''-terphenyl]-4,4''-diyl]] (9CI) (CA INDEX NAME)

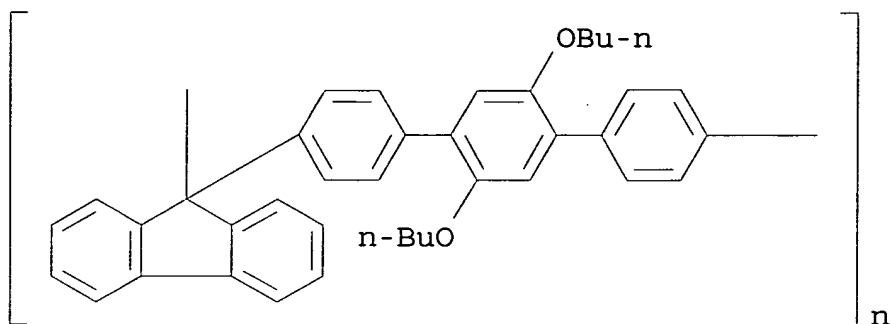
PAGE 1-A



PAGE 2-A

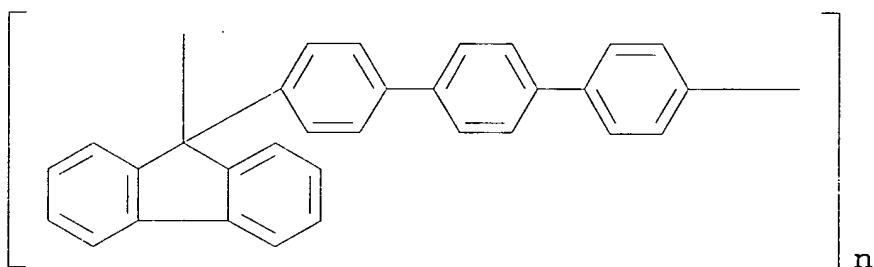


RN 328388-11-0 HCA
 CN Poly[9H-fluoren-9-ylidene(2',5'-dibutoxy[1,1':4',1''-terphenyl]-
 4,4''-diyl)] (9CI) (CA INDEX NAME)



RN 389806-20-6 HCA

CN Poly(9H-fluorene-9-ylidene[1,1':4',1''-terphenyl]-4,4''-diyl) (9CI)
(CA INDEX NAME)



IT 328388-05-2P 328388-06-3P 328388-07-4P
328388-08-5P 328388-09-6P 328388-10-9P
328388-11-0P 389806-20-6P

(copolymer semiconductor materials made of oligophenylene units
and at least one fluorene unit)

L45 ANSWER 2 OF 9 HCA COPYRIGHT 2005 ACS on STN

134:208263 Synthesis and characterization of new copolymers based on
fluorenylidene-linked conjugated oligo(p-phenylene)s. Faber, Rene;
Stasko, Andrej; Nuyken, Oskar (Lehrstuhl für Makromolekulare Stoffe,
Technische Universität München, Garching, D-85747, Germany).
Macromolecular Chemistry and Physics, 201(17), 2257-2266 (English)
2000. CODEN: MCHPES. ISSN: 1022-1352. Publisher:
Wiley-VCH Verlag GmbH.

AB A group of alternating, thermally stable, fluorescent copolymers
consisting of fluorenylidene-linked conjugated oligo(p-phenylene)
segments is presented. The copolymers have been prepared by the
palladium-catalyzed Suzuki polycondensation method. Analogous model
compounds have been also prepared. The copolymers obtained are found to
be soluble and easily processable from conventional organic solvents such
as chloroform and have been characterized by ¹H and ¹³C NMR

spectroscopy, FT-IR spectroscopy and elemental anal. The d.p. was estd. by GPC. The thermal properties of the copolymers were characterized by DSC. The results obtained by UV/VIS spectroscopy indicate that electronic properties can easily be tailored by a variation of the length and structure of the chromophore unit and are independent of the length of the polymer main chain.

IT 328388-05-2P 328388-06-3P 328388-07-4P
328388-08-5P 328388-09-6P 328388-10-9P
328388-11-0P

(synthesis and characterization of copolymers based on fluorenylidene-linked conjugated oligo(p-phenylene)s)

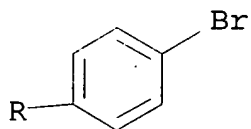
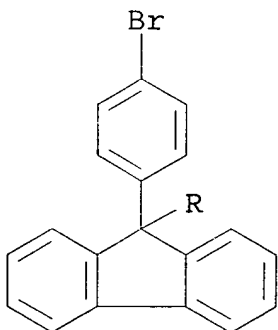
RN 328388-05-2 HCA

CN 1,3,2-Dioxaborinane, 2,2'-(1,4-phenylene)bis-, polymer with 9,9-bis(4-bromophenyl)-9H-fluorene (9CI) (CA INDEX NAME)

CM 1

CRN 128406-10-0

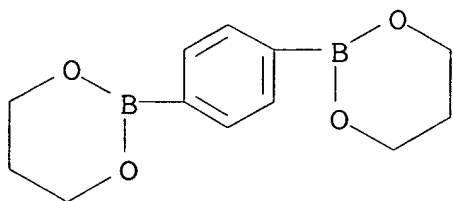
CMF C25 H16 Br2



CM 2

CRN 96433-09-9

CMF C12 H16 B2 O4



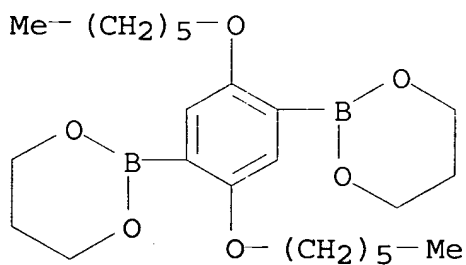
RN 328388-06-3 HCA

CN 1,3,2-Dioxaborinane, 2,2'-[2,5-bis(hexyloxy)-1,4-phenylene]bis-,
polymer with 9,9-bis(4-bromophenyl)-9H-fluorene (9CI) (CA INDEX
NAME)

CM 1

CRN 241802-45-9

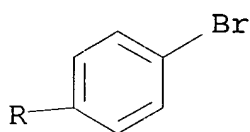
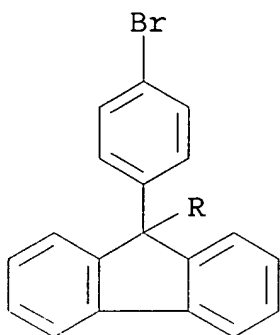
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CM 2

CRN 128406-10-0

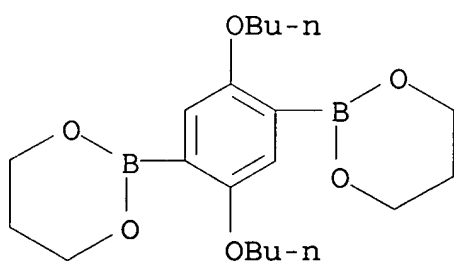
CMF C25 H16 Br2



RN 328388-07-4 HCA
 CN 1,3,2-Dioxaborinane, 2,2'-(2,5-butoxy-1,4-phenylene)bis-, polymer
 with 9,9-bis(4-bromophenyl)-9H-fluorene (9CI) (CA INDEX NAME)

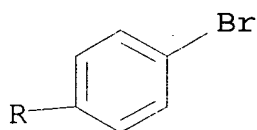
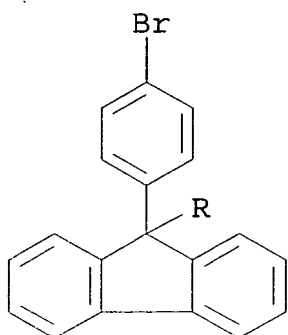
CM 1

CRN 328388-02-9
 CMF C20 H32 B2 O6



CM 2

CRN 128406-10-0
 CMF C25 H16 Br2



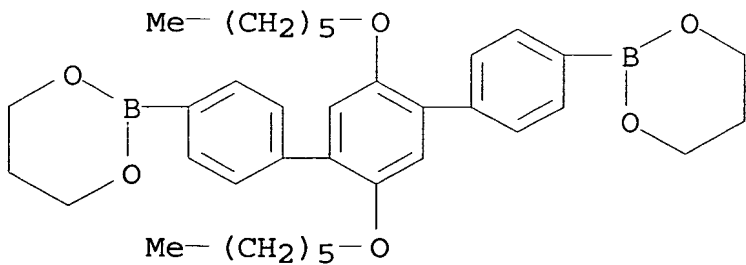
RN 328388-08-5 HCA

CN 1,3,2-Dioxaborinane, 2,2'-[2',5'-bis(hexyloxy) [1,1':4',1''-terphenyl]-4,4''-diyl]bis-, polymer with 9,9-bis(4-bromophenyl)-9H-fluorene (9CI) (CA INDEX NAME)

CM 1

CRN 328388-04-1

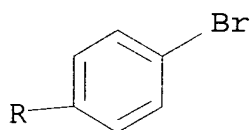
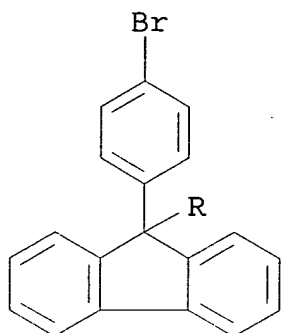
CMF C36 H48 B2 O6



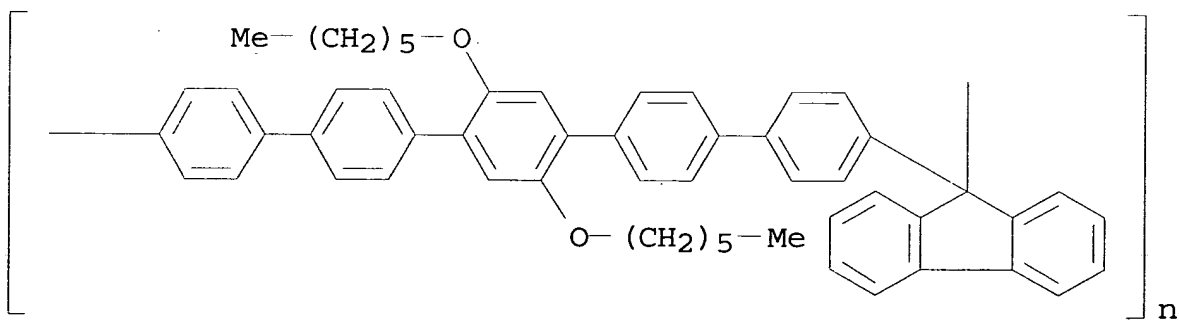
CM 2

CRN 128406-10-0

CMF C25 H16 Br2

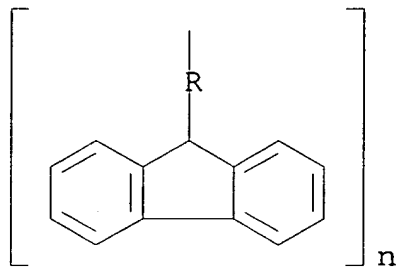


RN 328388-09-6 HCA
 CN Poly[9H-fluoren-9-ylidene[2'',5''-bis(hexyloxy) [1,1':4',1'':4'',1''':4''',1''''-quinquephenyl]-4,4''''-diyl]] (9CI) (CA INDEX NAME)

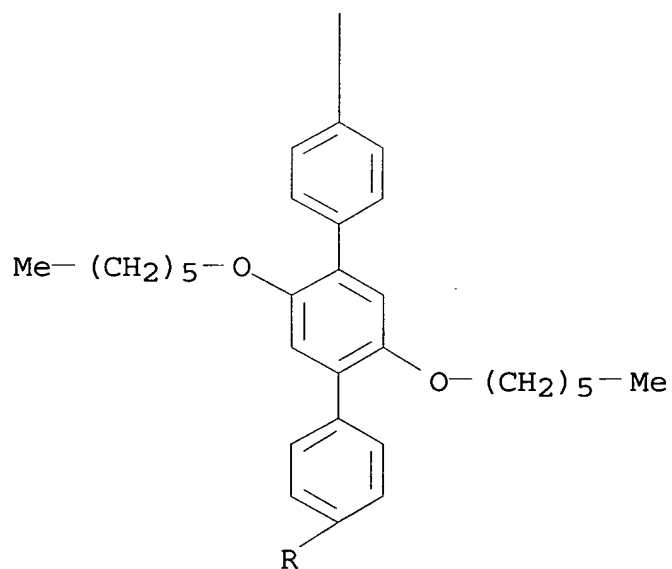


RN 328388-10-9 HCA
 CN Poly[9H-fluoren-9-ylidene[2',5'-bis(hexyloxy) [1,1':4',1''-terphenyl]-4,4''-diyl]] (9CI) (CA INDEX NAME)

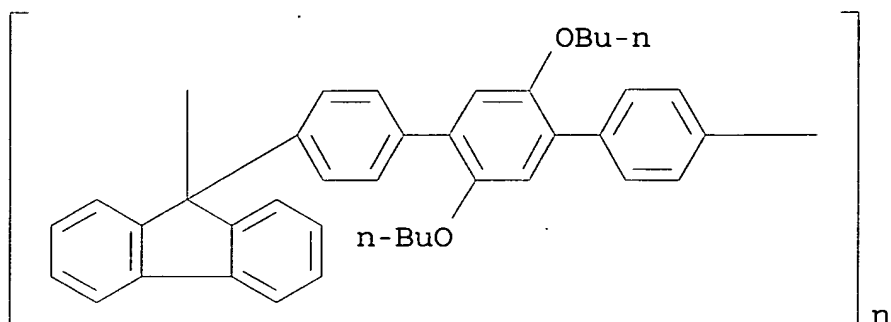
PAGE 1-A



PAGE 2-A



RN 328388-11-0 HCA
 CN Poly[9H-fluoren-9-ylidene(2',5'-dibutoxy[1,1':4',1''-terphenyl]-
 4,4''-diyl)] (9CI) (CA INDEX NAME)



IT 328388-05-2P 328388-06-3P 328388-07-4P
 328388-08-5P 328388-09-6P 328388-10-9P
 328388-11-0P

(synthesis and characterization of copolymers based on
 fluorenylidene-linked conjugated oligo(p-phenylene)s)

L45 ANSWER 3 OF 9 HCA COPYRIGHT 2005 ACS on STN

84:90615 Synthesis and study of p-carborane dicarboxylic acid-based
 polyesters. Bekasova, N. I.; Korshak, V. V.; Komarova, L. G.;
 Parashina, S. V. (Inst. Elementoorg. Soedin., Moscow, USSR).
 Vysokomolekulyarnye Soedineniya, Seriya B: Kratkie Soobshcheniya,
 15(10), 771-3 (Russian) 1973. CODEN: VYSBAI. ISSN:
 0507-5483.

AB Polyesters prepd. from p-carboranedicarbonyl dichloride and
 bisphenols and glycols had higher softening temp., better soly. and
 increased heat resistance compared to those contg. m-carborane rings
 in their main chain. P-carboranedicarbonyl dichloride-4,4'-
 dihydroxy-9,9-diphenylfluorene polymer (I) [58308-35-3],
 p-carboranedicarbonyl dichloride-4',4''-dihydroxydiphenylphthalide
 polymer [58308-36-4], bisphenol A-p-carboranedicarbonyl dichloride
 polymer [58308-37-5], p-carboranedicarbonyl dichloride-hydroquinone
 polymer (II) [58308-38-6], p-carboranedicarbonyl
 dichloride-1,6-hexanediol polymer [58308-39-7] and
 p-carboranedicarbonyl dichloride-ethylene glycol polymer
 [58308-40-0] were prepd. and their properties were detd. Thus, I
 was not hydrolyzed in boiling H₂O compared to its m-carborane-contg.
 analog, which under the same conditions was completely hydrolyzed.
 All polymers were amorphous except for cryst. II. Polyesters with
 p-carborane rings softened without decompn. at 130-380.degree. and
 were sol. in org. solvents. They decomposed at .apprx.400.degree.
 but the coke residue at 840.degree. was 10-20% lower than of
 m-carborane contg. polymers.

IT 58308-35-3P

(prepn. and properties of)

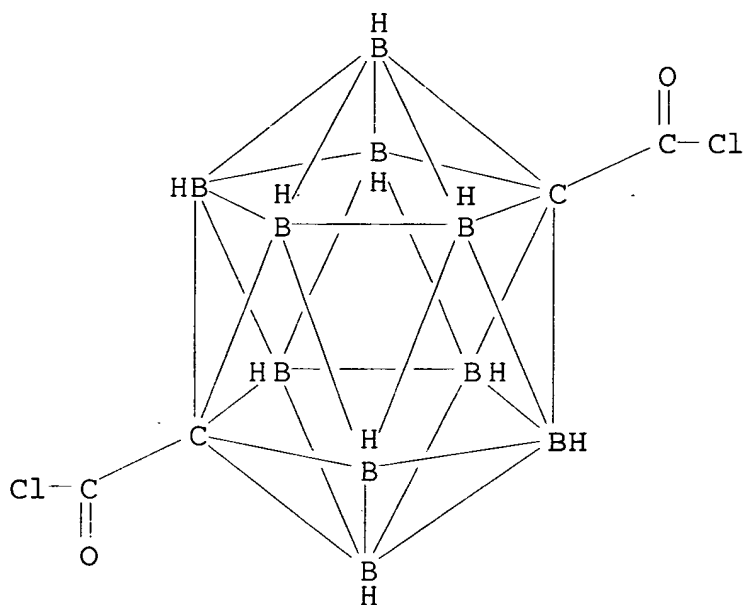
RN 58308-35-3 HCA

CN 1,12-Dicarbadoodecaborane(12)-1,12-dicarbonyl dichloride, polymer
with 4,4'-(9H-fluoren-9-ylidene)bis[phenol] (9CI) (CA INDEX NAME)

CM 1

CRN 34755-49-2

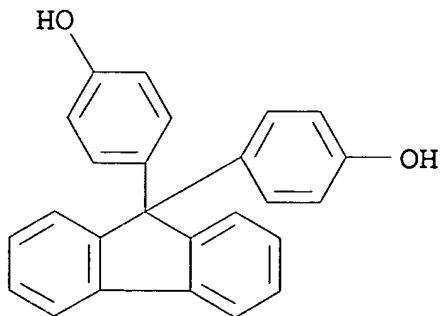
CMF C4 H10 B10 Cl2 O2



CM 2

CRN 3236-71-3

CMF C25 H18 O2



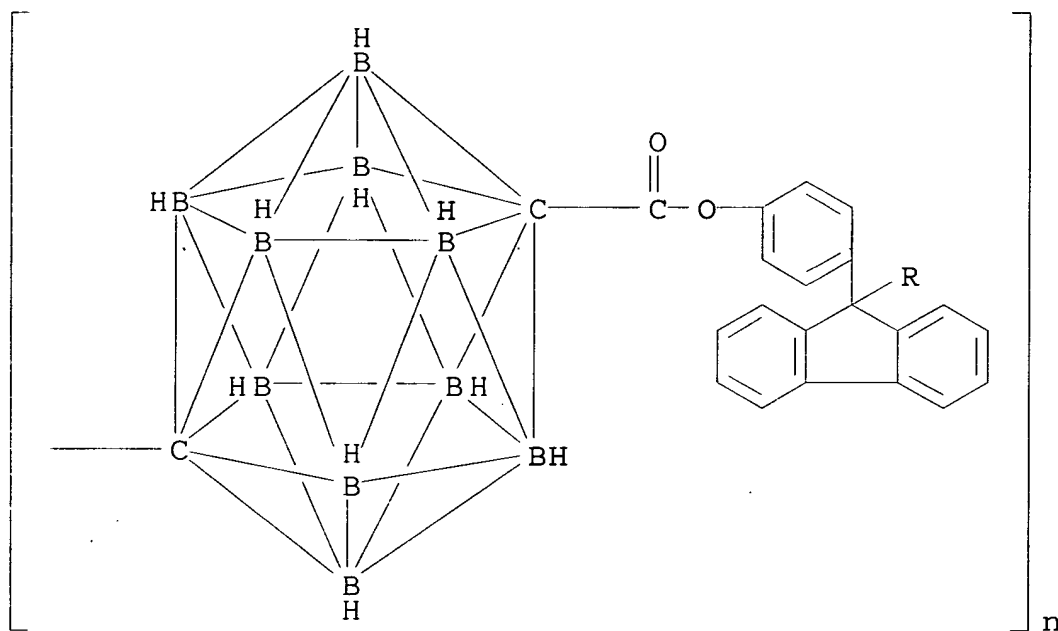
IT 58320-77-7P

(prepn. of)

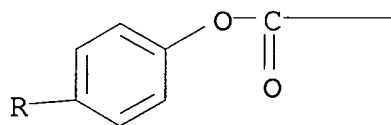
RN 58320-77-7 HCA

CN Poly(1,12-dicarbadodecaborane(12)-1,12-diylcarbonyloxy-1,4-phenylene-9H-fluoren-9-ylidene-1,4-phenyleneoxycarbonyl) (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 2-A



IT 58308-35-3P
(prepn. and properties of)

IT 58320-77-7P
(prepn. of)

L45 ANSWER 4 OF 9 HCA COPYRIGHT 2005 ACS on STN

79:115910 Polyamides of 1,7-bis(p-carboxyphenyl)carborane. Valetskii, P. M.; Glivka, L. A.; Dubrovina, L. V.; Vinogradov, S. V.; Danilov, V. G.; Stanko, V. I.; Korshak, V. V. (Inst. Elementoorg. Soedin, Moscow, USSR). Vysokomolekulyarnye Soedineniya, Seriya A, 15(6), 1227-33 (Russian) 1973. CODEN: VYSAAF. ISSN: 0507-5475.

AB Seven polyamides derived from 1,7-bis(p-carboxyphenyl)carborane and aromatic diamines, e.g., 1,7-bis(p-carboxyphenyl)carborane-m-

phenylenediamine copolymer [42441-78-1] were synthesized and their properties were detd. The polyamides had high heat and thermal-oxidative resistance. Their softening temps. and solubilities were higher than those of the corresponding polyamides derived from 1,2-bis(p-carboxyphenyl)carborane. The polyamides were prepd. by reacting the diamines with 1,7-bis[p-(chloroformyl)phenyl]carborane in AcNMe₂ or THF-H₂O mixt. The reaction medium had little effect on the properties of the products. The parameters of the Mark-Houwink eq. were calcd. for 9,9-bis(p-aminophenyl)fluorene-1,7-bis(p-carboxyphenyl)carborane copolymer [42398-00-5] prepd. in both media.

IT 42398-00-5P 50819-93-7P

(prepn. of)

RN 42398-00-5 HCA

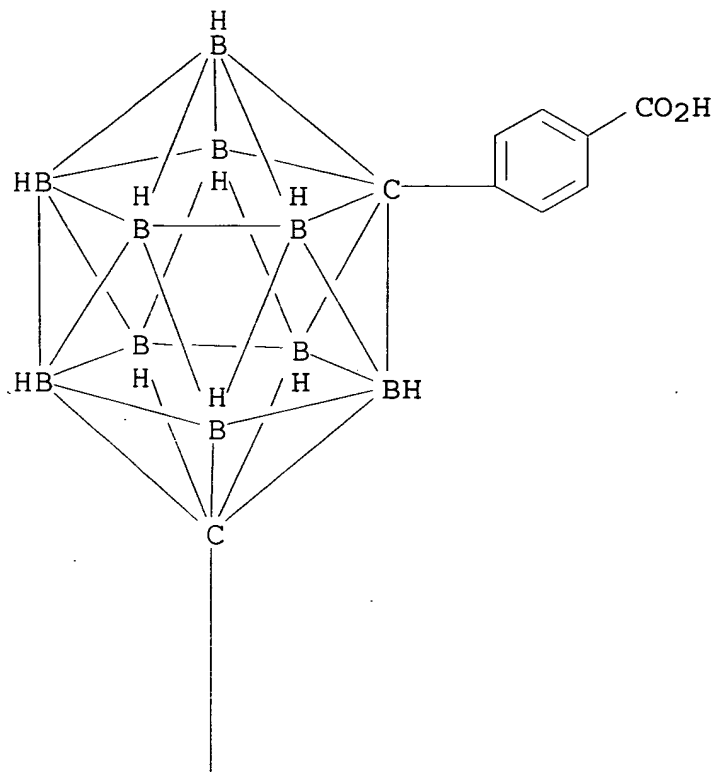
CN Benzoic acid, 4,4'-(1,7-dicarbadodecaborane(12)-1,7-diyl)bis-, polymer with 4,4'-(9H-fluoren-9-ylidene)bis[benzenamine] (9CI) (CA INDEX NAME)

CM 1

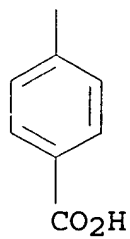
CRN 23039-50-1

CMF C16 H20 B10 O4

PAGE 1-A



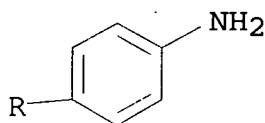
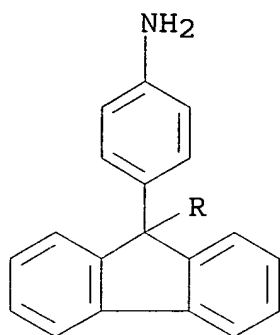
PAGE 2-A



CM 2

CRN 15499-84-0

CMF C25 H20 N2



RN 50819-93-7 HCA
 CN Poly(1,7-dicarbadodecaborane(12)-1,7-diyl-1,4-phenylenecarbonylimino-1,4-phenylene-9H-fluoren-9-ylidene-1,4-phenyleneimino-1,4-phenylene)
 (9CI) (CA INDEX NAME)

* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *

* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *
 IT 42398-00-5P 50819-93-7P
 (prepn. of)

L45 ANSWER 5 OF 9 HCA COPYRIGHT 2005 ACS on STN
 77:152624 Synthesis and investigation of polyamides based on
 p-carboranedicarboxylic acid. Korshak, V. V.; Komarova, L. G.;
 Bekasova, N. I. (Inst. Elementoorg. Soedin., Moscow, USSR).
 Vysokomolekulyarnye Soedineniya, Seriya A, 14(8), 1761-5 (Russian)
 1972. CODEN: VYSAAF. ISSN: 0507-5475.
 AB P-carboranedicarboxylic acid-m-phenylenediamine polyamide
 [36974-19-3], and similar polyamides from p-carboranedicarboxylic
 acid and benzidine, 4,4'-diaminodiphenylmethane,
 9,9-bis(4-aminophenyl)fluorene, or hexamethylenediamine were prepd.
 by the low temp. soln. condensation. In contrast to similar
 polyamides from m-carboranedicarboxylic acid, these products were
 stable to thermal oxidative degradation but less sol. in org.

solvents.

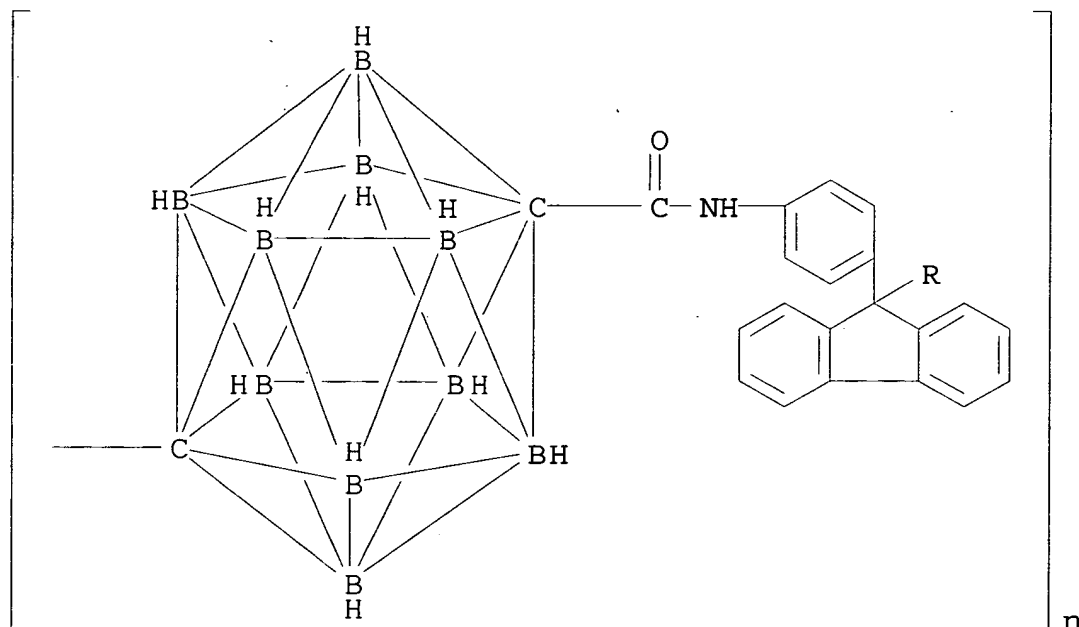
IT 38785-60-3P 38998-57-1P

(prepn. and oxidn. resistance of)

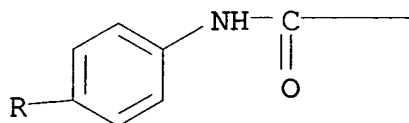
RN 38785-60-3 HCA

CN Poly[1,12-dicarbadoecaborane(12)-1,12-diylcarbonylimino-1,4-phenylene-9H-fluoren-9-ylidene-1,4-phenyleneiminocarbonyl] (9CI)
(CA INDEX NAME)

PAGE 1-A



PAGE 2-A



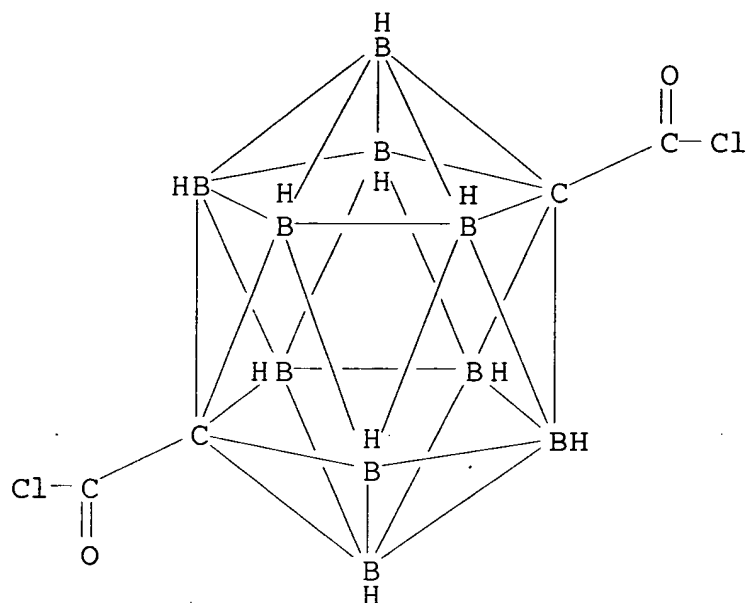
RN 38998-57-1 HCA

CN Benzenamine, 4,4'-(9H-fluoren-9-ylidene)bis-, polymer with
1,12-dicarbadoecaborane(12)-1,12-dicarbonyl dichloride (9CI) (CA
INDEX NAME)

CM 1

CRN 34755-49-2

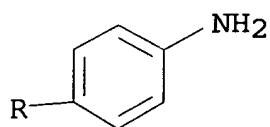
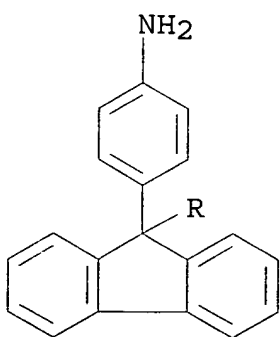
CMF C4 H10 B10 Cl2 O2



CM 2

CRN 15499-84-0

CMF C25 H20 N2



IT 38785-60-3P 38998-57-1P
(prepn. and oxidn. resistance of)

L45 ANSWER 6 OF 9 HCA COPYRIGHT 2005 ACS on STN

77:127089 Polyarylates based on 1,7-bis(4-carboxyphenyl)carborane. Korshak, V. V.; Vinogradova, S. V.; Kalachev, A. I.; Valetskii, P. M.; Titova, N. S.; Stanko, V. I. (Inst. Elementoorg. Soedin., Moscow, USSR). Vysokomolekulyarnye Soedineniya, Seriya A, 14(6), 1306-12 (Russian) 1972. CODEN: VYSAAF. ISSN: 0507-5475.

AB 1,7-Bis[4-(chloroformyl)phenyl]carborane [22761-53-1] underwent polycondensation with hydroquinone [123-31-9], 4,4'-dihydroxydiphenyl ether [1965-09-9], bisphenol A [80-05-7], 9,9-bis(4-hydroxyphenyl)fluorene [3236-71-3], 9,9-bis(4-hydroxyphenyl)-10-anthrone [16889-49-9], and phenolphthalein [77-09-8] to give film-forming carborane-contg. polyarylates in quant. yield. These polyesters had softening points, heat resistance, and soly. similar to the corresponding polyarylates based on 1,2-bis[4-(chloroformyl)phenyl]carborane (I); those synthesized from condensed bisphenols were less ordered than the corresponding I polyesters, but those based on the other bisphenols were more ordered than the I derivs.

IT 37244-40-9P 37244-48-7P
(prepn. of)

RN 37244-40-9 HCA

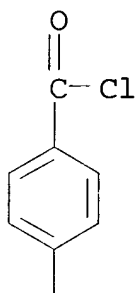
CN Benzoyl chloride, 4,4'-(1,7-dicarbadodecaborane(12)-1,7-diyl)bis-, polymer with 4,4'-(9H-fluoren-9-ylidene)bis[phenol] (9CI) (CA INDEX NAME)

CM 1

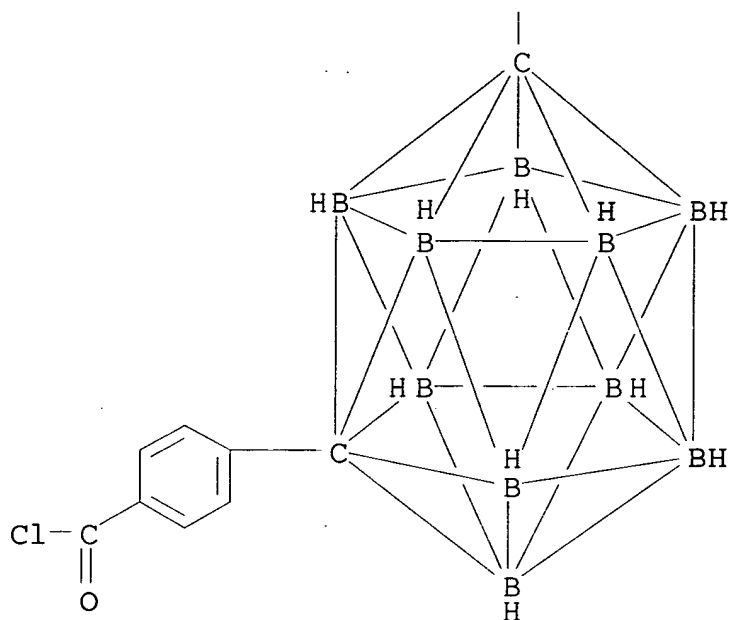
CRN 22761-53-1

CMF C16 H18 B10 Cl2 O2

PAGE 1-A



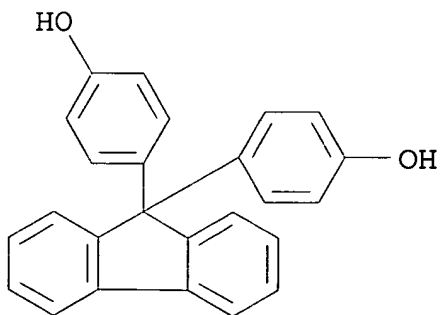
PAGE 2-A



CM 2

CRN 3236-71-3

CMF C25 H18 O2



RN 37244-48-7 HCA

CN Poly(1,7-dicarbadoecaborane(12)-1,7-diyl-1,4-phenylenecarbonyloxy-1,4-phenylene-9H-fluoren-9-ylidene-1,4-phenyleneoxycarbonyl-1,4-phenylene) (9CI) (CA INDEX NAME)

* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *

* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *

IT 37244-40-9P 37244-48-7P
(prepn. of)

L45 ANSWER 7 OF 9 HCA COPYRIGHT 2005 ACS on STN

77:88880 1,2-Bis-(4-carboxyphenyl)carborane-based polyamides. Korshak, V. V.; Valetskii, P. M.; Glivka, L. A.; Vinogradova, S. V.; Titova, N. S.; Stanko, V. I. (Inst. Elementoorg. Soedin., Moscow, USSR). Vysokomolekulyarnye Soedineniya, Seriya A, 14(5), 1043-7 (Russian) 1972. CODEN: VYSAAF. ISSN: 0507-5475.

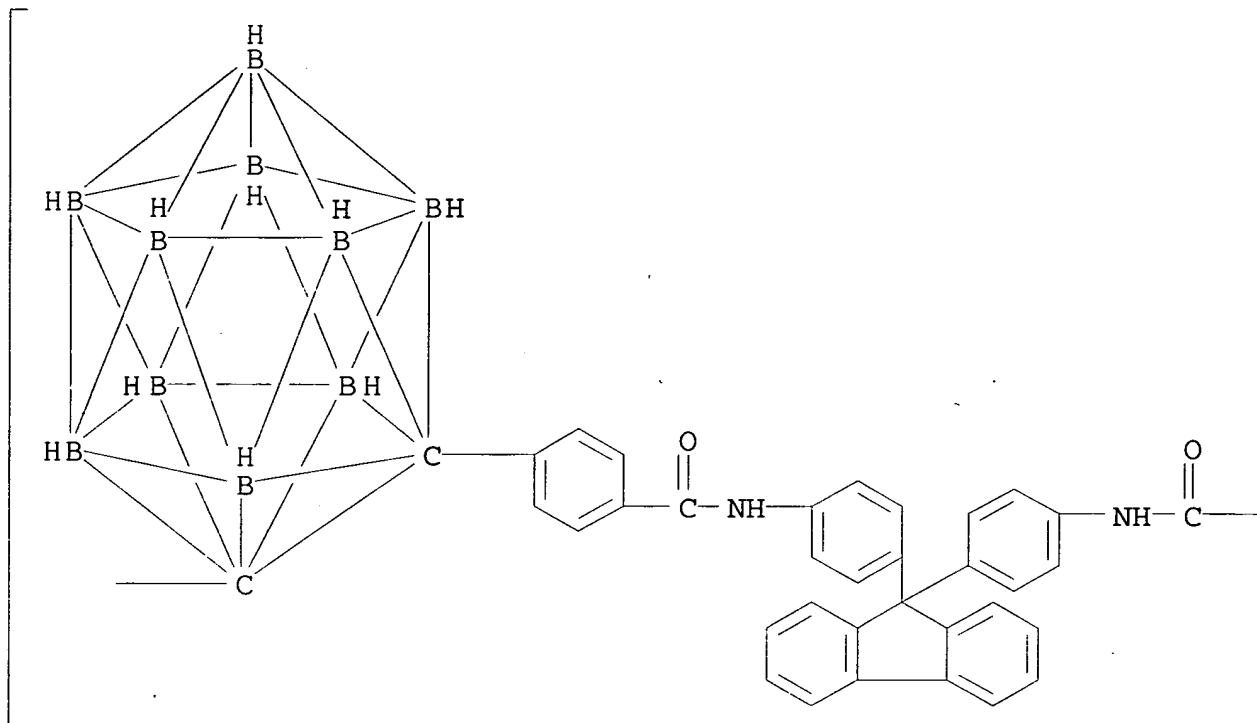
AB 1,2-Bis(4-carboxyphenyl)carborane [22761-54-2] formed polyamides with piperazine [110-85-0], p-phenylenediamine [106-50-3], and 8 other aromatic diamines by polycondensation at -25 to -20.deg. in AcNMe2 or CHCl3. The product was sol. in org. solvents, had adequate film-forming properties, and had higher heat resistance than the corresponding polyamides based on m-carboranedicarboxylic acid.

IT 38670-11-0P 38720-86-4P
(prepn. and properties of)

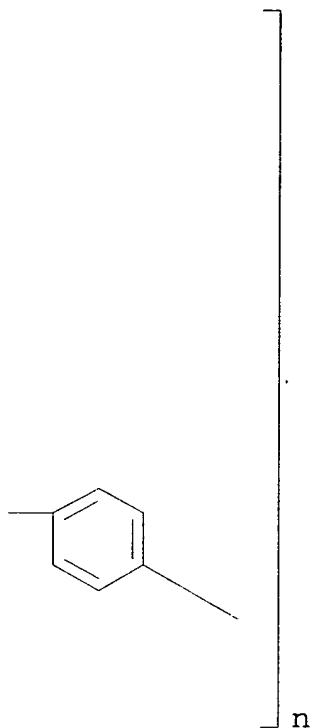
RN 38670-11-0 HCA

CN Poly(1,2-dicarbododecaborane(12)-1,2-diyl-1,4-phenylenecarbonylimino-1,4-phenylene-9H-fluoren-9-ylidene-1,4-phenyleneiminocarbonyl-1,4-phenylene) (9CI) (CA INDEX NAME)

PAGE 1-A

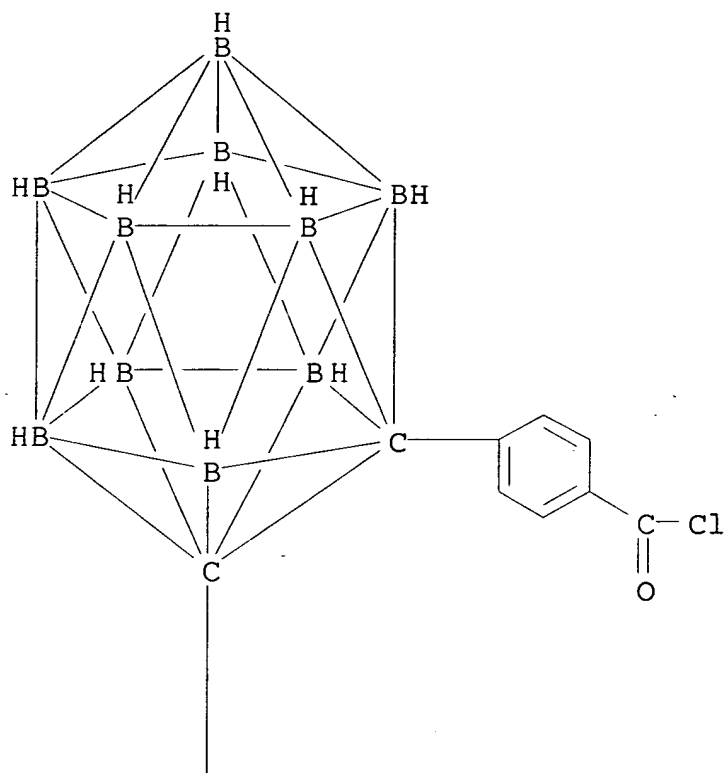


PAGE 1-B

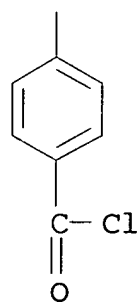


RN 38720-86-4 HCA
 CN Benzoyl chloride, 4,4'-(1,2-dicarbododecaborane(12)-1,2-diyl)bis-,
 polymer with 4,4'-(9H-fluoren-9-ylidene)bis[benzenamine] (9CI) (CA
 INDEX NAME)
 CM 1
 CRN 22761-52-0
 CMF C16 H18 B10 Cl2 O2

PAGE 1-A



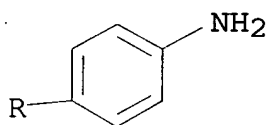
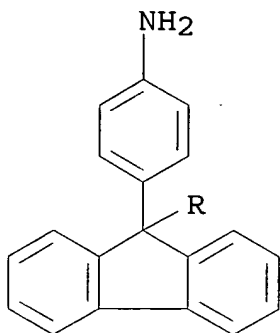
PAGE 2-A



CM 2

CRN 15499-84-0

CMF C25 H20 N2



IT 38670-11-0P 38720-86-4P
(prepn. and properties of)

L45 ANSWER 8 OF 9 HCA COPYRIGHT 2005 ACS on STN

75:49700 Polyarylates of 1,2-bis(p-carboxyphenyl)-o-carborane [1,2-bis(p-carboxyphenyl)dicarboclosododecaborane]. Korshak, V. V.; Vinogradova, S. V.; Kalachev, A. I.; Valetskii, P. M.; Stanko, V. I. (Inst. Elementoorg. Soedin., Moscow, USSR). Vysokomolekulyarnye Soedineniya, Seriya A, 13(4), 848-53 (Russian) 1971. CODEN: VYSAAF. ISSN: 0507-5475.

GI For diagram(s), see printed CA Issue.

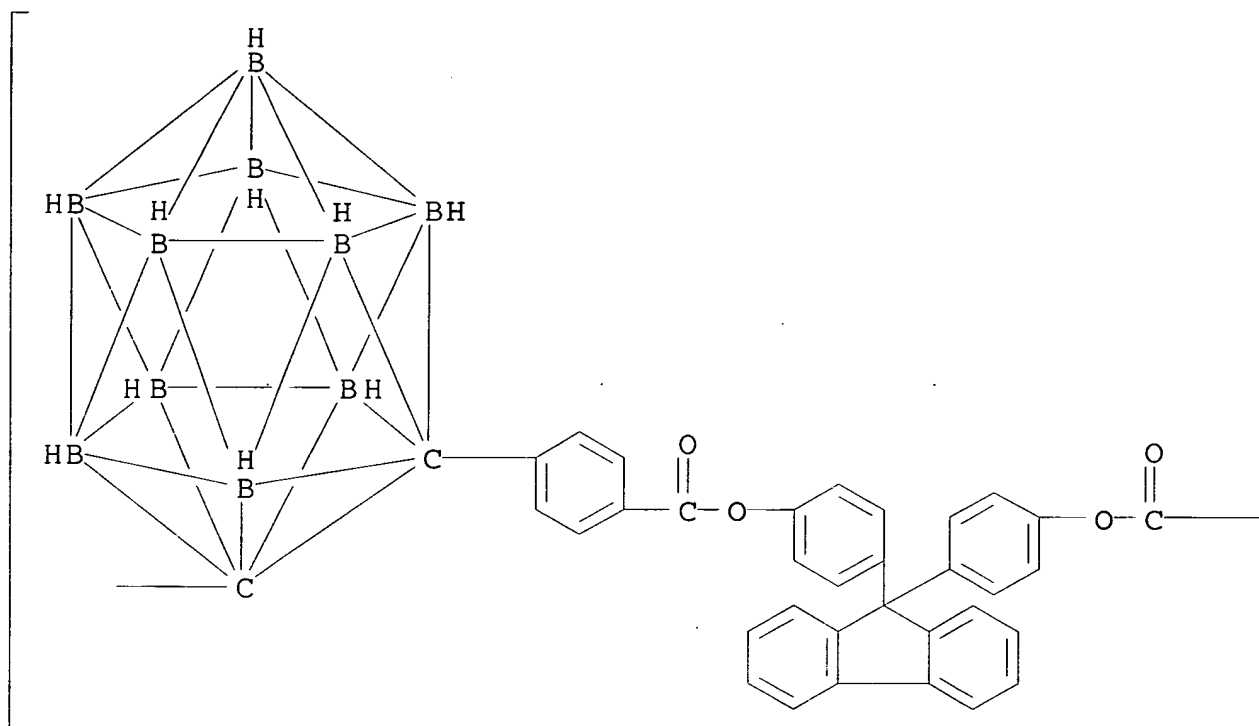
AB Six high mol. wt. polyarylates of carborane, e.g., poly[phthalidylidenedi-p-phenylene 4,4'-(o-carborane-1,2-diyl)dibenzoate] (I) and poly[fluoren-9-ylidenedi-p-phenylene 4,4'-(o-carborane-1,2-diyl)dibenzoate], were prepd. by low temp. or high temp. polycondensation of 1,2-bis[4-(chlorocarbonyl)phenyl]-o-carborane and bisphenols. The polyarylates had high softening points (320-95.degree.); were sol. in CHCl₃ and C₂H₂Cl₄ and formed films of high tensile strength and thermal stability. Four of the polyarylates prepd. had a cryst. structure. The bisphenols used, other than those indicated above, were: 4,4'-oxydiphenol, 4,4'-isopropylidenediphenol, and 4,4'-(9,10-dihydro-10-oxo-9-anthrylidene)diphenol. Hydroquinone was also used.

IT 31549-42-5P 32799-41-0P
(prepn. of)

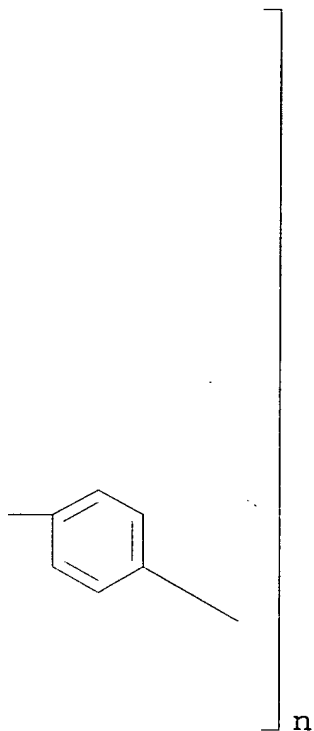
RN 31549-42-5 HCA

CN Poly(1,2-dicarbododecaborane(12)-1,2-diyl-1,4-phenylenecarbonyloxy-1,4-phenylene-9H-fluoren-9-ylidene-1,4-phenyleneoxycarbonyl-1,4-phenylene) (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B

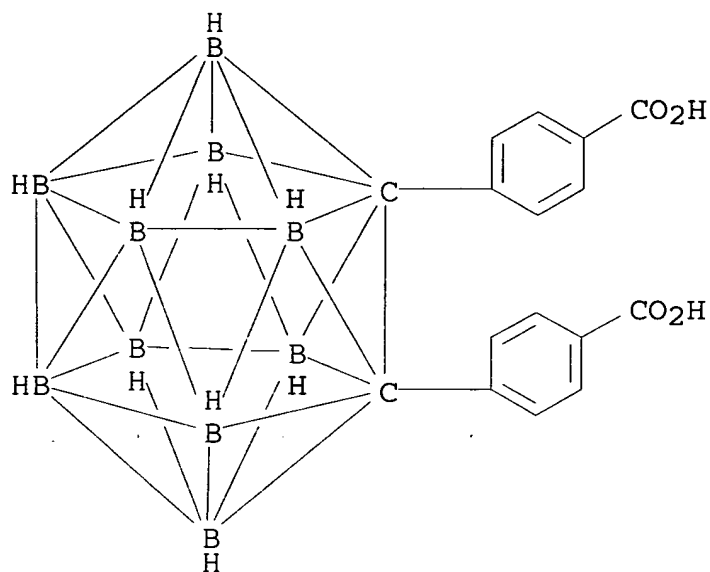


RN 32799-41-0 HCA
 CN Benzoic acid, 4,4'-(1,2-dicarbadodecaborane(12)-1,2-diyl)bis-,
 polymer with 4,4'-(9H-fluoren-9-ylidene)bis[phenol] (9CI) (CA INDEX
 NAME)

CM 1

CRN 22761-54-2

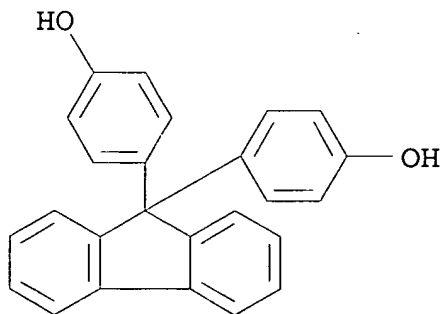
CMF C16 H20 B10 O4



CM 2

CRN 3236-71-3

CMF C25 H18 O2



IT 31549-42-5P 32799-41-0P
(prepn. of)

L45 ANSWER 9 OF 9 HCA COPYRIGHT 2005 ACS on STN

73:99282 Synthesis and properties of polyamides and polyesters from neocarboranedicarboxylic dichloride. Korshak, V. V.; Bekasova, N. I.; Komarova, L. G. (Inst. Organoelement Compd., Moscow, USSR). Journal of Polymer Science, Polymer Chemistry Edition, 8(9), 2351-60 (English) 1970. CODEN: JPLCAT. ISSN: 0449-296X.

AB Polyamides and polyesters based on neocarboranedicarbonyl chloride were prepd. by low-temp. polycondensation in soln. and

characterized. In prepg. the polyamides, the following diamines were used: benzidine, hexamethylenediamine, m-phenylenediamine, p-phenylenediamine, 4,4'-diaminodiphenyl ether, 4,4'-diaminodiphenylmethane, 4,4'-diaminodiphenyl sulfide, and hydroquinone diaminodiphenyl ester. Polyesters were obtained by using the following diols: phenolphthalein, hydroquinone, 4,4'-dihydroxydiphenylpropane, 9,9-dihydroxydiphenylfluorene, 1,6-hexanediol, and ethylene glycol. The resulting neocarborane polyesters melt and are easily sol. in THF, amide solvents, and CHCl_3 . The neocarborane polyamides described do not melt, are readily sol. in THF and DMF, and form transparent films; they are thermostable in an inert atm. at high temp.

IT 28453-95-4P 28471-00-3P

(prepn. of)

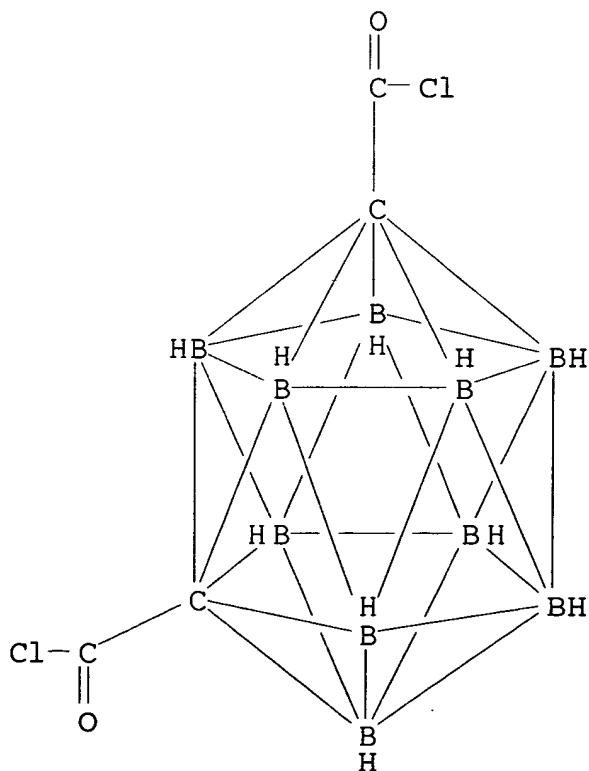
RN 28453-95-4 HCA

CN 1,7-Dicarbadoodecaborane(12)-1,7-dicarbonyl chloride, polyester with 4,4'-fluoren-9-ylidenediphenol (8CI) (CA INDEX NAME)

CM 1

CRN 23810-52-8

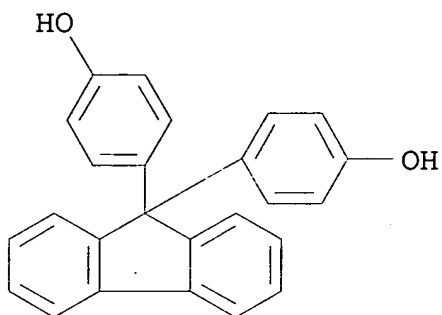
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CM 2

CRN 3236-71-3

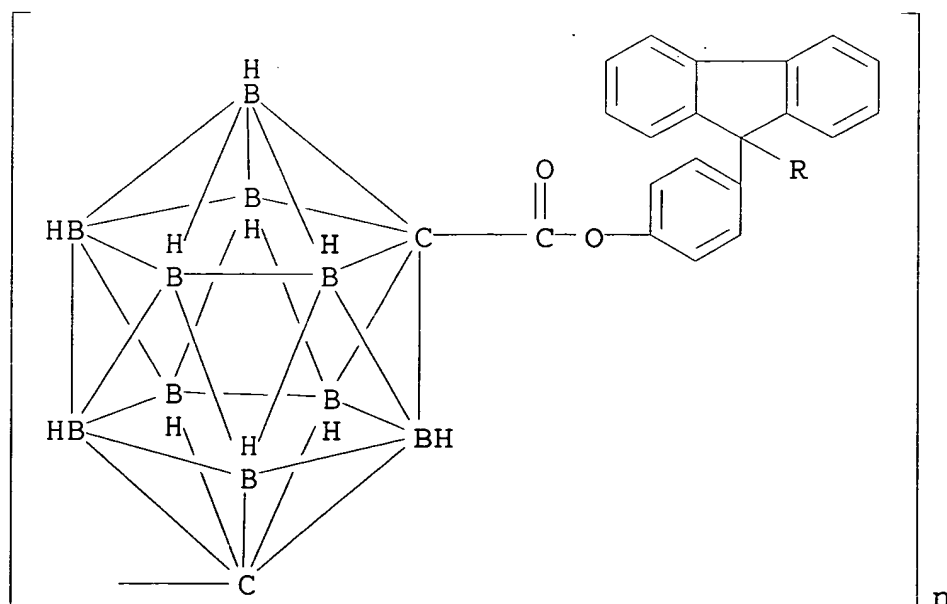
CMF C25 H18 O2



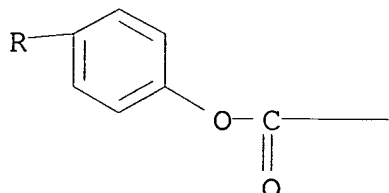
RN 28471-00-3 HCA

CN Poly(1,7-dicarbadodecaborane(12)-1,7-diylcarbonyloxy-1,4-phenylene-9H-fluoren-9-ylidene-1,4-phenyleneoxycarbonyl) (9CI) (CA INDEX NAME)

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IT 28453-95-4P 28471-00-3P
(prepn. of)

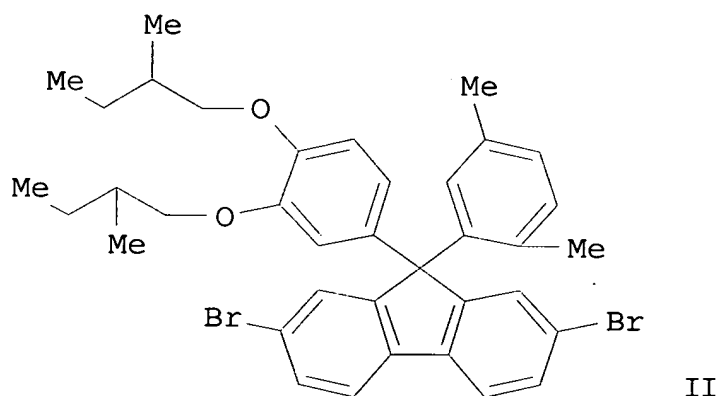
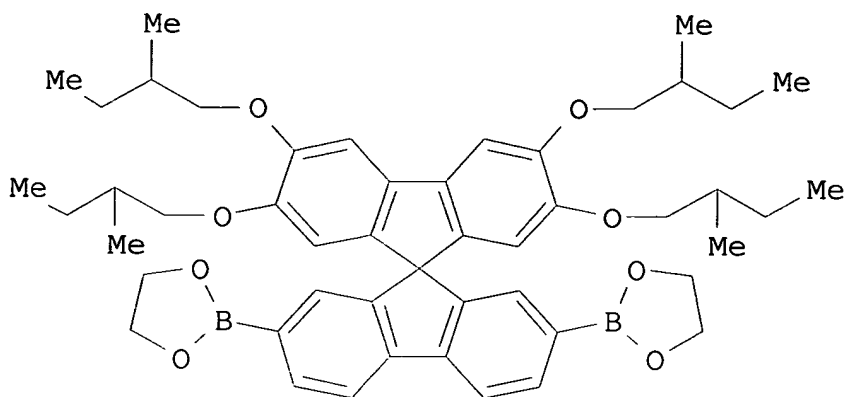
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L46 ANSWER 1 OF 28 HCA COPYRIGHT 2005 ACS on STN

142:355769 Conjugated polymers and their preparation and use.

Vestweber, Horst; Gerhard, Anja; Stoessel, Philipp (Covion Organic Semiconductors G.m.b.H., Germany). PCT Int. Appl. WO 2005030828 A1 20050407, 31 pp. DESIGNATED STATES: W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG, TR. (German). CODEN: PIXXD2. APPLICATION: WO 2004-EP10505 20040918. PRIORITY: DE 2003-10343606 20030920; DE 2003-10357317 20031205.

GI



AB The title polymers, inert to air and with low voltage rise when used with polymer LED's, contain .gtoreq.5 mol% heterocyclic units of specified structure. Suzuki coupling gave a polymer contg. 2,2'-(5,5'-2,5-pentoxo-1,4-phenylene)bithiophene 30, monomer I 50, monomer II 10, and N,N'-bis(4-tert-butylphenyl)-N,N'-bis(4-bromophenyl)-4,4'-biphenyldiamine 10 mol% with wt.- and no.-av. mol. wt. 593,000 and 89,000, resp.; and electroluminescence .lambda.max 512/541 nm.

IT **849113-54-8P 849113-56-0P 849113-58-2P**
849113-60-6P

(conjugated polymers and their prepn. and use)

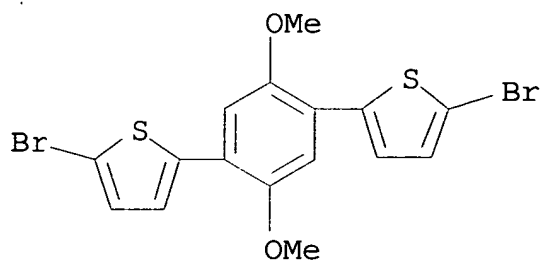
RN 849113-54-8 HCA

CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(4-bromophenyl)-N,N'-bis[4-(1,1-dimethylethyl)phenyl]-, polymer with 9-[3,4-bis(2-methylbutoxy)phenyl]-2,7-dibromo-9-(2,5-dimethylphenyl)-9H-fluorene, 2,2'-(2,5-dimethoxy-1,4-phenylene)bis[5-bromothiophene] and 2,2'-[2',3',6',7'-tetrakis(2-methylbutoxy)-9,9'-spirobi[9H-fluorene]-2,7-diyl]bis[1,3,2-dioxaborolane] (9CI) (CA INDEX NAME)

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CRN 849113-38-8

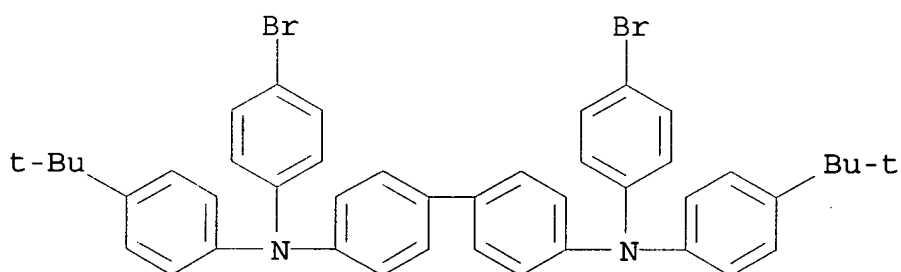
CMF C16 H12 Br2 O2 S2



CM 2

CRN 463944-36-7

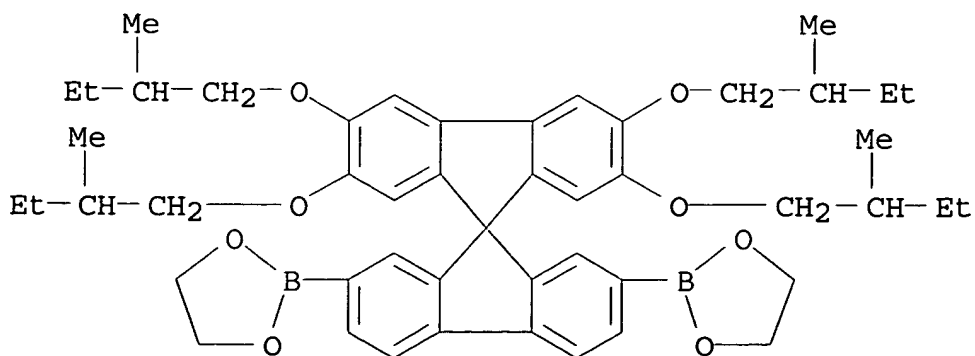
CMF C44 H42 Br2 N2



CM 3

CRN 396123-43-6

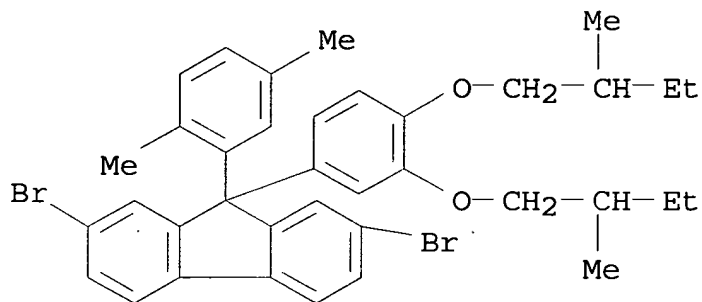
CMF C49 H62 B2 O8



CM 4

CRN 396123-39-0

CMF C37 H40 Br2 O2



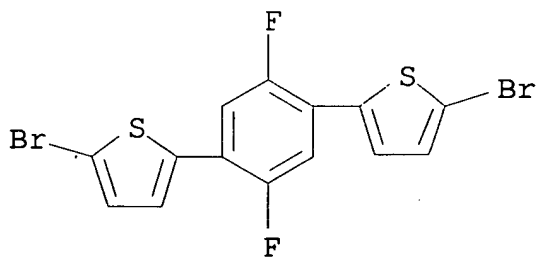
RN 849113-56-0 HCA

CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(4-bromophenyl)-N,N'-bis[4-(1,1-dimethylethyl)phenyl]-, polymer with 9-[3,4-bis(2-methylbutoxy)phenyl]-2,7-dibromo-9-(2,5-dimethylphenyl)-9H-fluorene, 2,2'-(2,5-difluoro-1,4-phenylene)bis[5-bromothiophene] and 2,2'-[2',3',6',7'-tetrakis(2-methylbutoxy)-9,9'-spirobi[9H-fluorene]-2,7-diyl]bis[1,3,2-dioxaborolane] (9CI) (CA INDEX NAME)

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CRN 849113-37-7

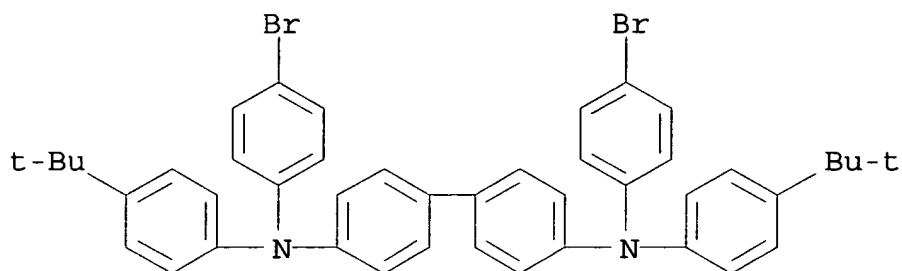
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CM 2

CRN 463944-36-7

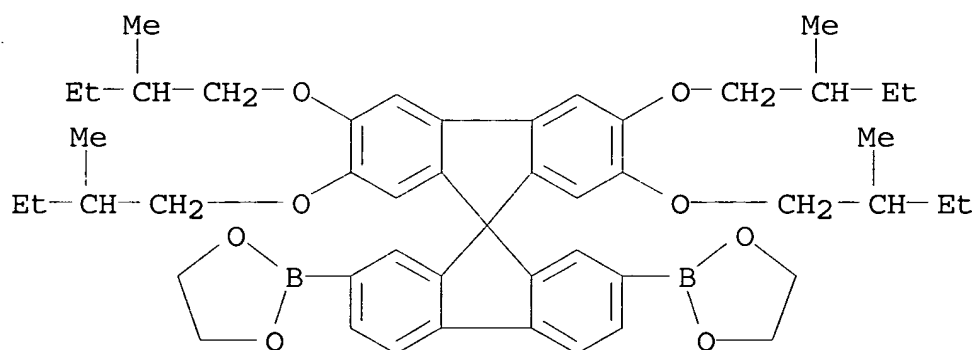
CMF C44 H42 Br2 N2



CM 3

CRN 396123-43-6

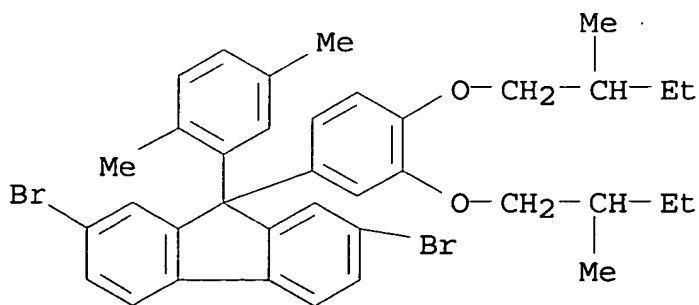
CMF C49 H62 B2 O8



CM 4

CRN 396123-39-0

CMF C37 H40 Br2 O2



RN 849113-58-2 HCA

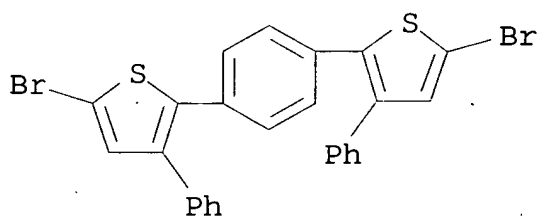
CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(4-bromophenyl)-N,N'-bis[4-

(1,1-dimethylethyl)phenyl]-, polymer with 9-[3,4-bis(2-methylbutoxy)phenyl]-2,7-dibromo-9-(2,5-dimethylphenyl)-9H-fluorene, 2,2'-(1,4-phenylene)bis[5-bromo-3-phenylthiophene] and 2,2'-[2',3',6',7'-tetrakis(2-methylbutoxy)-9,9'-spirobi[9H-fluorene]-2,7-diyl]bis[1,3,2-dioxaborolane] (9CI) (CA INDEX NAME)

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CRN 849113-52-6

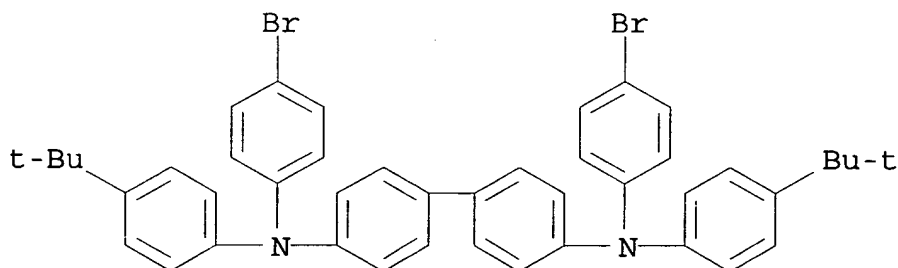
CMF C26 H16 Br2 S2



CM 2

CRN 463944-36-7

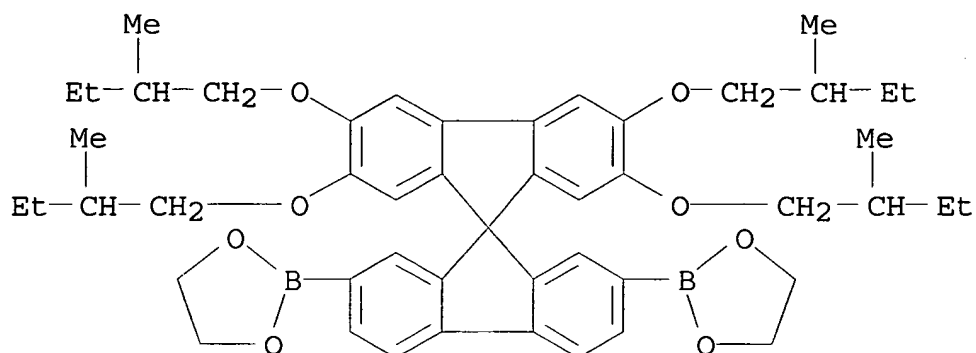
CMF C44 H42 Br2 N2



CM 3

CRN 396123-43-6

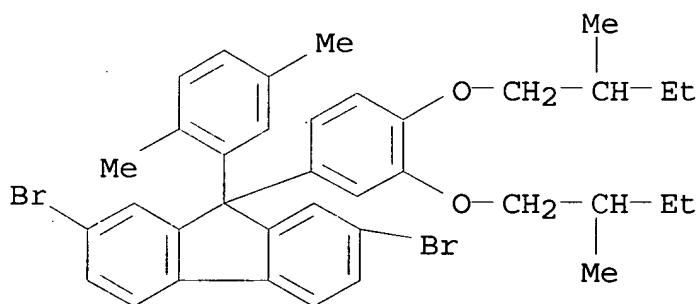
CMF C49 H62 B2 O8



CM 4

CRN 396123-39-0

CMF C37 H40 Br2 O2



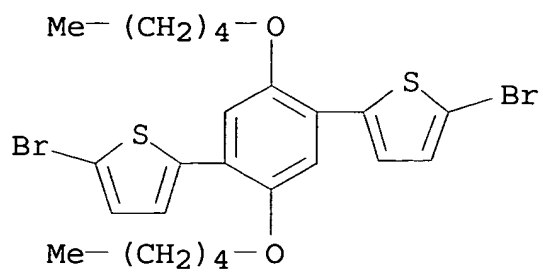
RN 849113-60-6 HCA

CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(4-bromophenyl)-N,N'-bis[4-(1,1-dimethylethyl)phenyl]-, polymer with 9-[3,4-bis(2-methylbutoxy)phenyl]-2,7-dibromo-9-(2,5-dimethylphenyl)-9H-fluorene, 2,2'-[2,5-bis(pentyloxy)-1,4-phenylene]bis[5-bromothiophene] and 2,2'-[2',3',6',7'-tetrakis(2-methylbutoxy)-9,9'-spirobi[9H-fluorene]-2,7-diyl]bis[1,3,2-dioxaborolane] (9CI) (CA INDEX NAME)

CM 1

CRN 849113-39-9

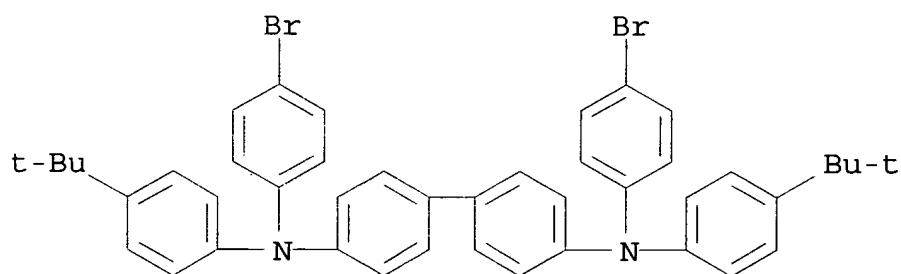
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CM 2

CRN 463944-36-7

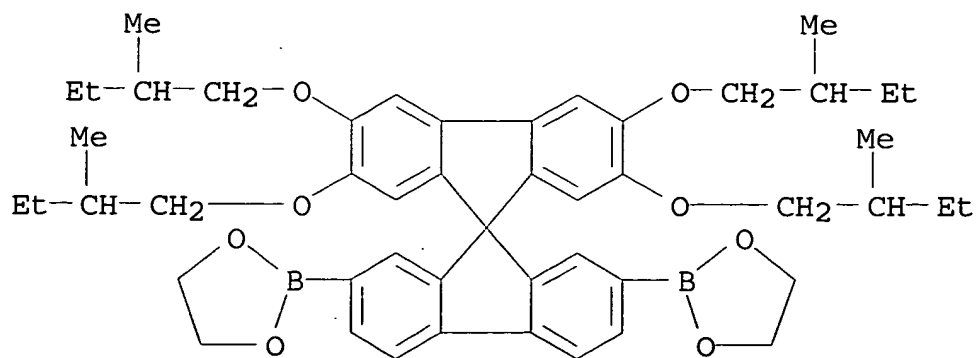
CMF C44 H42 Br2 N2



CM 3

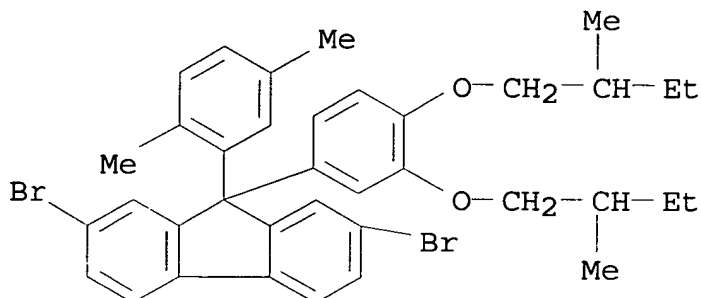
CRN 396123-43-6

CMF C49 H62 B2 O8



CM 4

CRN 396123-39-0
CMF C37 H40 Br2 O2



IT 849113-54-8P 849113-56-0P 849113-58-2P
849113-60-6P
(conjugated polymers and their prepn. and use)

L46 ANSWER 2 OF 28 HCA COPYRIGHT 2005 ACS on STN

142:308096 Electronic device comprising an organic semiconductor and an intermediate buffer layer made of a polymer that is cationically polymerizable and contains no photoacid. Parham, Amir; Falcou, Aurelie; Heun, Susanne; Steiger, Juergen (Covion Organic Semiconductors G.m.b.H., Germany). PCT Int. Appl. WO 2005024970 A1 20050317, 36 pp. DESIGNATED STATES: W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG, TR. (German). CODEN: PIXXD2. APPLICATION: WO 2004-EP9902 20040904. PRIORITY: DE 2003-10340711 20030904.

AB The invention relates to electronic devices comprising at least one layer of a conductive, doped polymer and a layer of an org. semiconductor. The electronic devices are characterized in that at least one cationically polymerizable, conducting or semiconducting org. buffer layer to which <0.5% of a photoacid is admixed is inserted between the 2 layers. Surprisingly, the electronic properties of the inventive devices can be significantly improved by inserting at least one cationically crosslinkable buffer layer between the doped intermediate layer and the functional org. semiconductor layer. Particularly good properties are obtained with a buffer layer in which cationic crosslinking is thermally induced, i.e. by raising the temp. to 50-250.degree., preferably 80-200.degree., without adding any photoacid. Another advantage of the buffer layer consists of the fact that uncontrolled crosslinking

of a cationically crosslinkable semiconductor can be prevented by using the buffer layer, thus allowing the semiconductor to be structured in a specific manner. Crosslinking the buffer layer has the further advantage of increasing the glass transition temp. of the material, and hence also the stability of the layer.

IT 847800-49-1P

(electronic device comprising an org. semiconductor and an intermediate buffer layer made of a polymer that is cationically polymerizable and contains no photoacid)

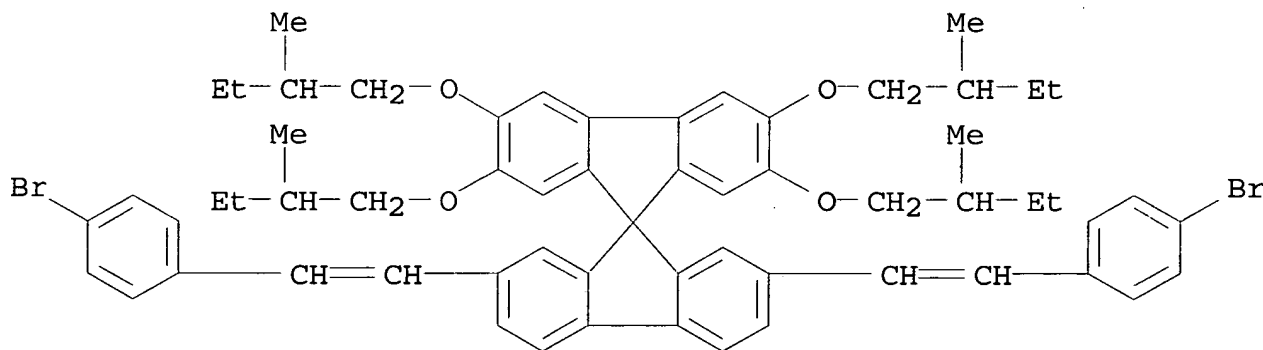
RN 847800-49-1 HCA

CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(4-bromophenyl)-N,N'-bis[4-(1,1-dimethylethyl)phenyl]-, polymer with 2',7'-bis[2-(4-bromophenyl)ethenyl]-2,3,6,7-tetrakis(2-methylbutoxy)-9,9'-spirobi[9H-fluorene], 9-[3,4-bis(2-methylbutoxy)phenyl]-2,7-dibromo-9-(2,5-dimethylphenyl)-9H-fluorene and 2,2'-[2',3',6',7'-tetrakis(2-methylbutoxy)-9,9'-spirobi[9H-fluorene]-2,7-diyl]bis[1,3,2-dioxaborolane] (9CI) (CA INDEX NAME)

CM 1

CRN 501434-76-0

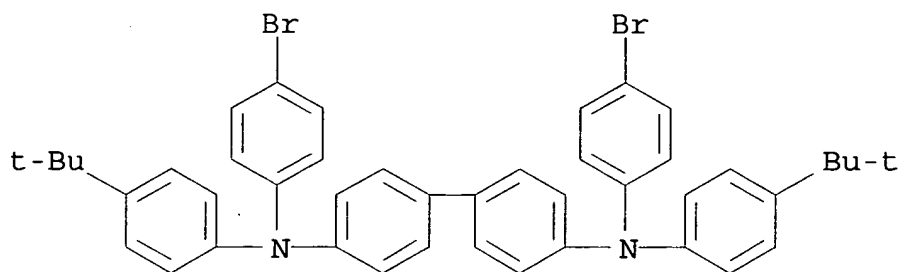
CMF C61 H66 Br2 O4



CM 2

CRN 463944-36-7

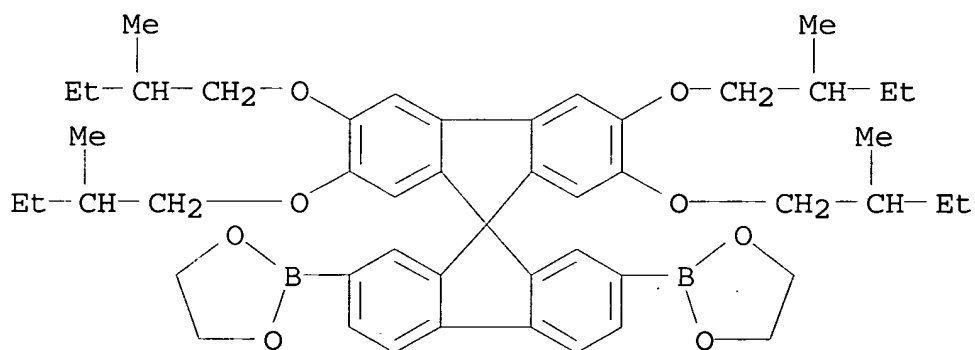
CMF C44 H42 Br2 N2



CM 3

CRN 396123-43-6

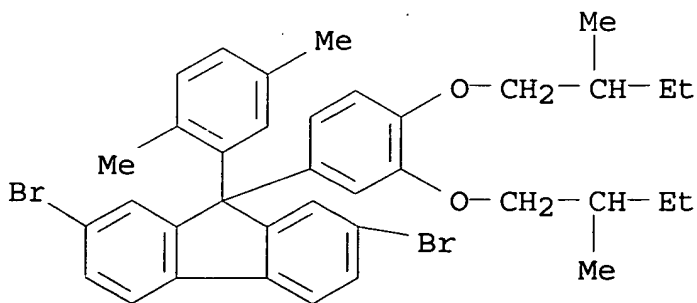
CMF C49 H62 B2 O8



CM 4

CRN 396123-39-0

CMF C37 H40 Br2 O2



IT 847800-49-1P

(electronic device comprising an org. semiconductor and an

intermediate buffer layer made of a polymer that is cationically polymerizable and contains no photoacid)

L46 ANSWER 3 OF 28 HCA COPYRIGHT 2005 ACS on STN

142:240861 Preparation and use of conjugated copolymers. Becker, Heinrich; Breuning, Esther; Falcou, Aurelie; Parham, Amir (Covion Organic Semiconductors G.m.b.H., Germany). PCT Int. Appl. WO 2005014688 A2 20050217, 33 pp. DESIGNATED STATES: W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG, TR. (German). CODEN: PIXXD2. APPLICATION: WO 2004-EP9018 20040812. PRIORITY: DE 2003-10337077 20030812.

GI

* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *

AB The title polymers, with good durability and efficiency in electroluminescent applications, contain .gtoreq.1 of the structures: blocks for hole or electron transport; blocks for injection of pos. or neg. charges; emitting blocks; blocks facilitating singlet-to-triplet exciton transition; and/or polymer backbone blocks. Refluxing 0.8 mmol N,N'-bis(4-bromophenyl)-N,N'-bis(4-tert-butylphenyl)-4,4'-biphenyldiamine, 0.72 mmol I, 3.91 g K phosphate hydrate, 0.45 mg Pd(OAc)₂, 3.65 mg tris(2-tolyl)phosphine, and dioxane 25, PhMe 25, and H₂O 6.8 mL for 4 h gave a block [no.- and wt.-av. (Mw) mol. wt. 13,700 and 34,4000, resp.] which was refluxed with II 1.2, III 1.2, I 2.04, IV 1.2, and V 0.8 mmol for 5 h, end-capped with 0.1 mL PhBr at reflux for 1 h, refluxed with PhB(OH)₂ for 1 h, and stirred with 0.01% aq. NaCN for 3 h to give 4.66 g block polymer with Mw 200,000 and polydispersity 5.0. Electroluminescence data for the polymers are exemplified.

IT 844701-59-3P 844701-61-7P 844701-63-9P

844701-64-0P 844701-65-1P

(conjugated; prepn. and use of conjugated block copolymers)

RN 844701-59-3 HCA

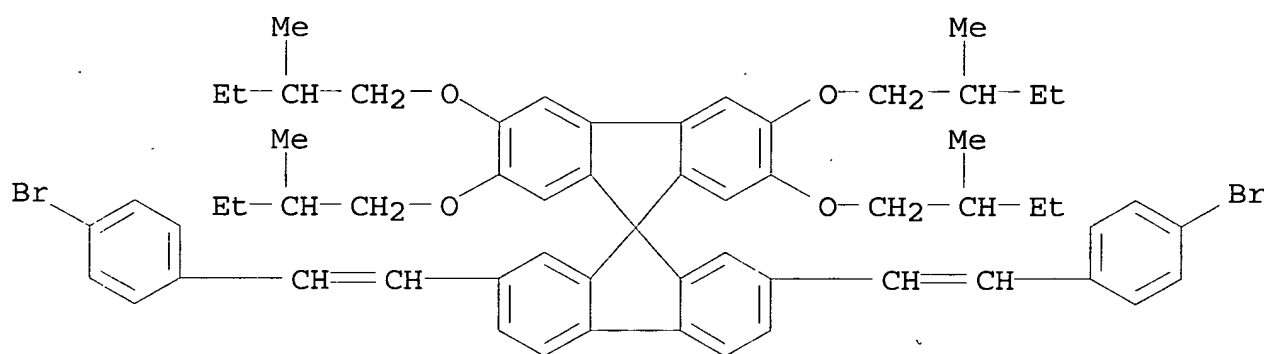
CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(4-bromophenyl)-N,N'-bis[4-(1,1-dimethylethyl)phenyl]-, polymer with 2',7'-bis[2-(4-bromophenyl)ethenyl]-2,3,6,7-tetrakis(2-methylbutoxy)-9,9'-spirobi[9H-fluorene], 9-[3,4-bis(2-methylbutoxy)phenyl]-2,7-dibromo-9-(2,5-dimethylphenyl)-9H-fluorene, 2,2'-[9-[3,4-bis(2-

methylbutoxy)phenyl]-9-(2,5-dimethylphenyl)-9H-fluorene-2,7-diyl]bis[4,4,5,5-tetramethyl-1,3,2-dioxaborolane], 2',7'-dibromo-2,3,6,7-tetrakis(2-methylbutoxy)-9,9'-spirobi[9H-fluorene] and 2,2'-[2',3',6',7'-tetrakis(2-methylbutoxy)-9,9'-spirobi[9H-fluorene]-2,7-diyl]bis[1,3,2-dioxaborolane], block (9CI) (CA INDEX NAME)

CM 1

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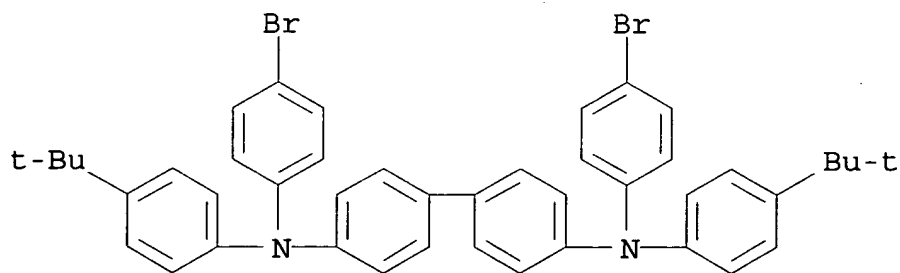
CMF C61 H66 Br2 O4



CM 2

CRN 463944-36-7

CMF C44 H42 Br2 N2

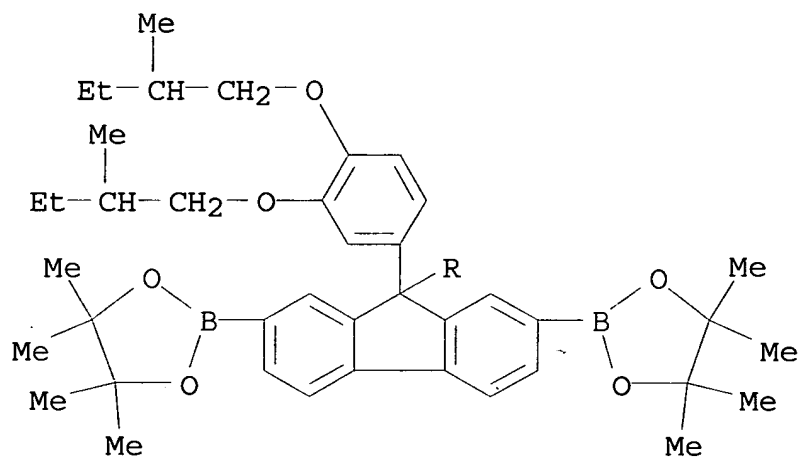


CM 3

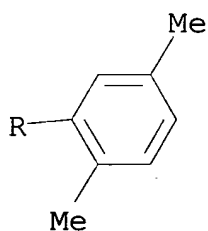
CRN 463944-35-6

CMF C49 H64 B2 O6

PAGE 1-A



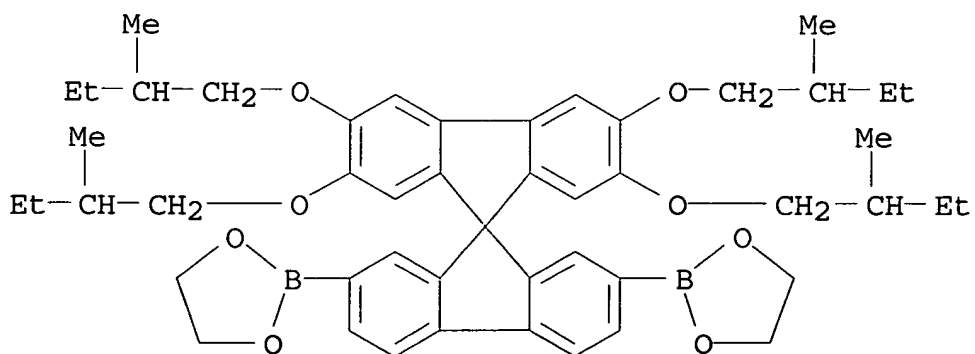
PAGE 2-A



CM 4

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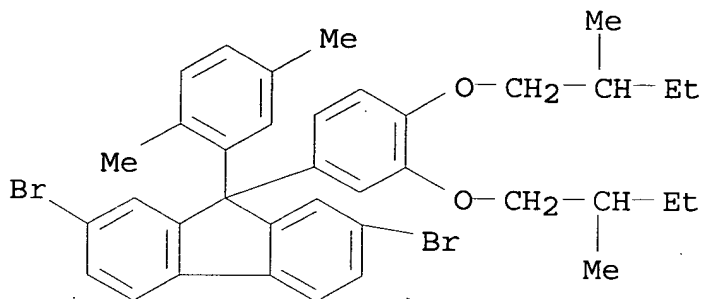
CMF C49 H62 B2 O8



CM 5

CRN 396123-39-0

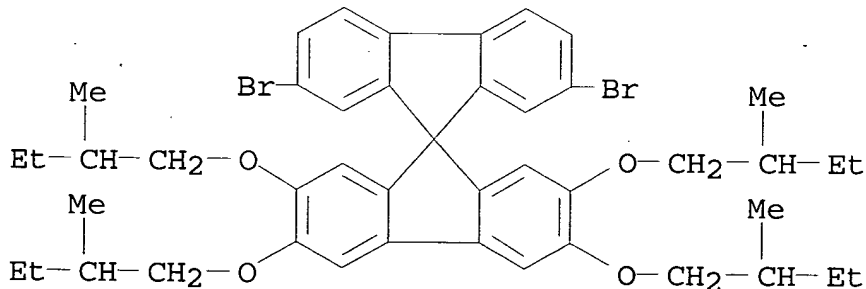
CMF C37 H40 Br2 O2



CM 6

CRN 395059-23-1

CMF C45 H54 Br2 O4



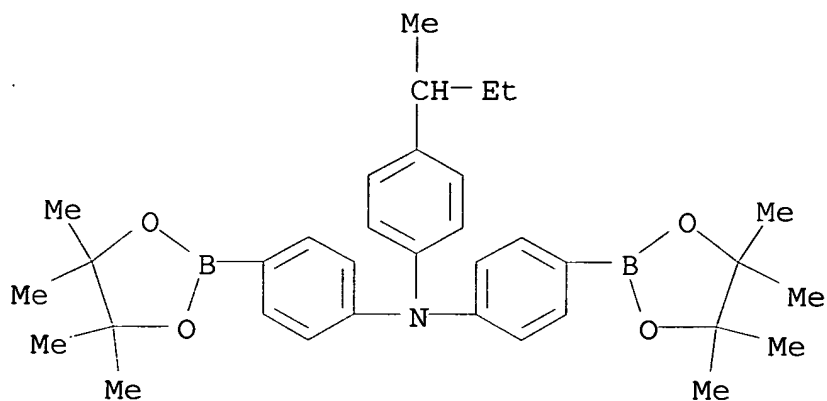
RN 844701-61-7 HCA

CN Benzenamine, 4-bromo-N-(4-bromophenyl)-N-phenyl-, polymer with 2',7'-bis[2-(4-bromophenyl)ethenyl]-2,3,6,7-tetrakis(2-methylbutoxy)-9,9'-spirobi[9H-fluorene], 9-[3,4-bis(2-methylbutoxy)phenyl]-2,7-dibromo-9-(2,5-dimethylphenyl)-9H-fluorene, 2',7'-dibromo-2,3,6,7-tetrakis(2-methylbutoxy)-9,9'-spirobi[9H-fluorene], 4-(1-methylpropyl)-N,N-bis[4-(4,4,5,5-tetramethyl-1,3,2-dioxaborolan-2-yl)phenyl]benzenamine and 2,2'-[2',3',6',7'-tetrakis(2-methylbutoxy)-9,9'-spirobi[9H-fluorene]-2,7-diyl]bis[1,3,2-dioxaborolane], block (9CI) (CA INDEX NAME)

CM 1

CRN 844701-60-6

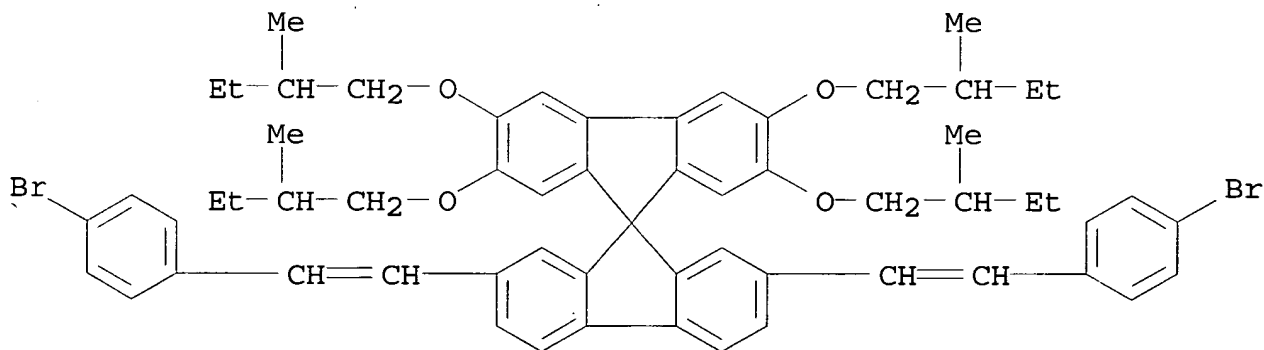
CMF C34 H45 B2 N O4



CM 2

CRN 501434-76-0

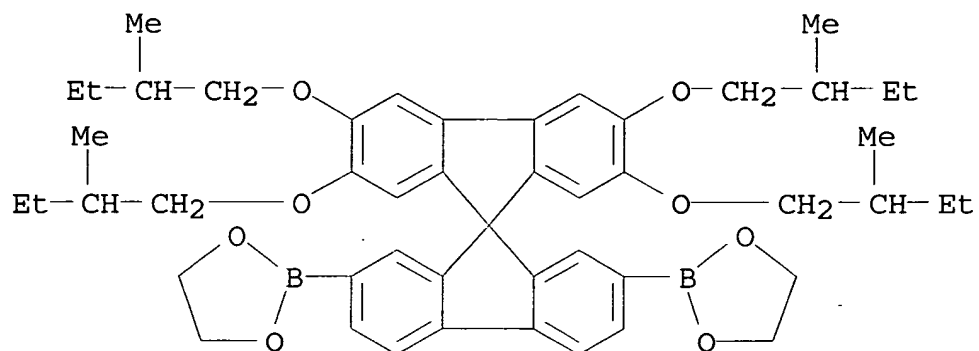
CMF C61 H66 Br2 O4



CM 3

CRN 396123-43-6

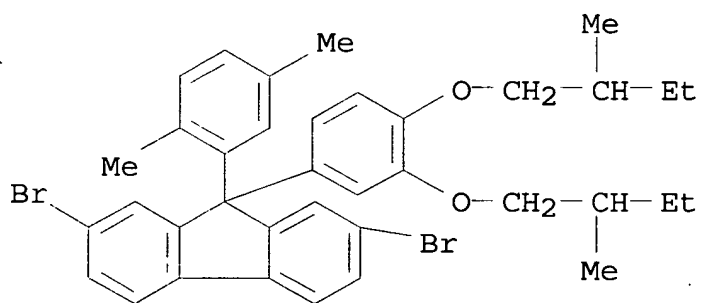
CMF C49 H62 B2 O8



CM 4

CRN 396123-39-0

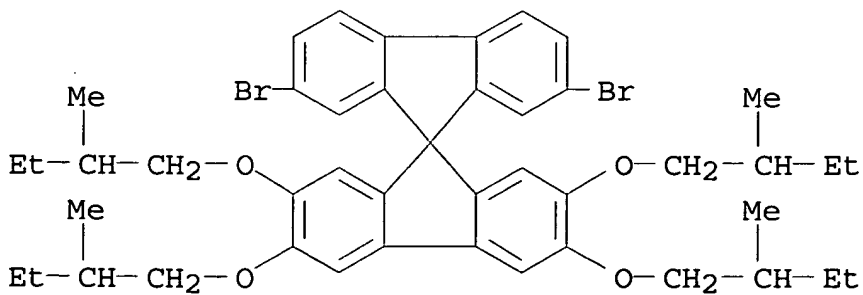
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CM 5

CRN 395059-23-1

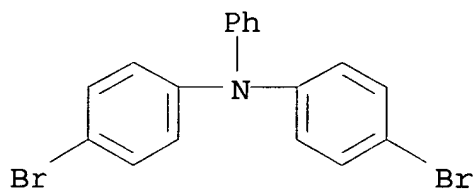
CMF C45 H54 Br2 O4



CM 6

CRN 81090-53-1

CMF C18 H13 Br2 N



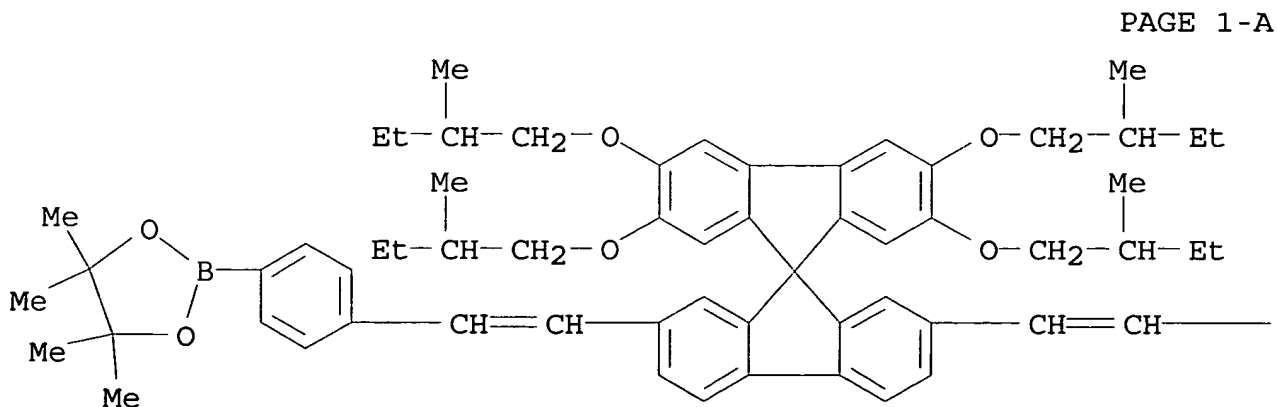
RN 844701-63-9 HCA

CN Benzenamine, 4-bromo-N-(4-bromophenyl)-N-phenyl-, polymer with 2',7'-bis[2-(4-bromophenyl)ethenyl]-2,3,6,7-tetrakis(2-methylbutoxy)-9,9'-spirobi[9H-fluorene], 9-[3,4-bis(2-methylbutoxy)phenyl]-2,7-dibromo-9-(2,5-dimethylphenyl)-9H-fluorene, 2',7'-dibromo-2,3,6,7-tetrakis(2-methylbutoxy)-9,9'-spirobi[9H-fluorene], 4-(1-methylpropyl)-N,N-bis[4-(4,4,5,5-tetramethyl-1,3,2-dioxaborolan-2-yl)phenyl]benzenamine, 2,2'-[2',3',6',7'-tetrakis(2-methylbutoxy)-9,9'-spirobi[9H-fluorene]-2,7-diyl]bis[1,3,2-dioxaborolane] and 2,2'-[[2',3',6',7'-tetrakis(2-methylbutoxy)-9,9'-spirobi[9H-fluorene]-2,7-diyl]bis(2,1-ethenediyl-4,1-phenylene)]bis[4,4,5,5-tetramethyl-1,3,2-dioxaborolane], block (9CI) (CA INDEX NAME)

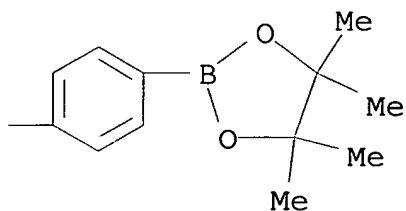
CM 1

CRN 844701-62-8

CMF C73 H90 B2 O8



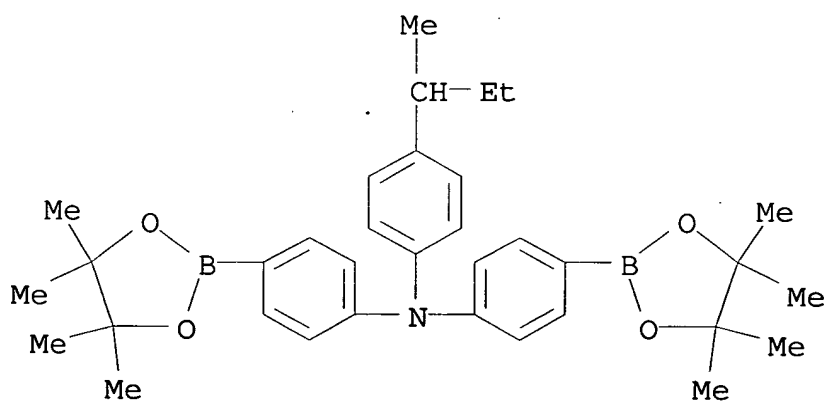
PAGE 1-B



CM 2

CRN 844701-60-6

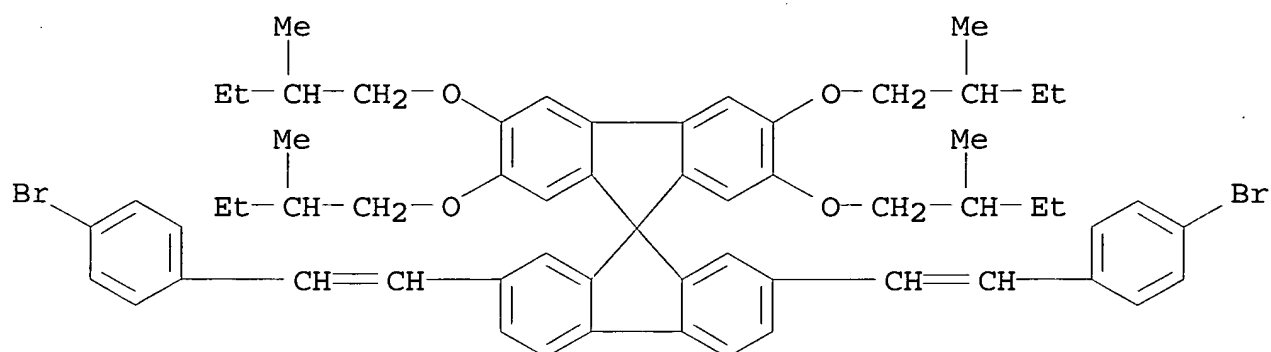
CMF C34 H45 B2 N O4



CM 3

CRN 501434-76-0

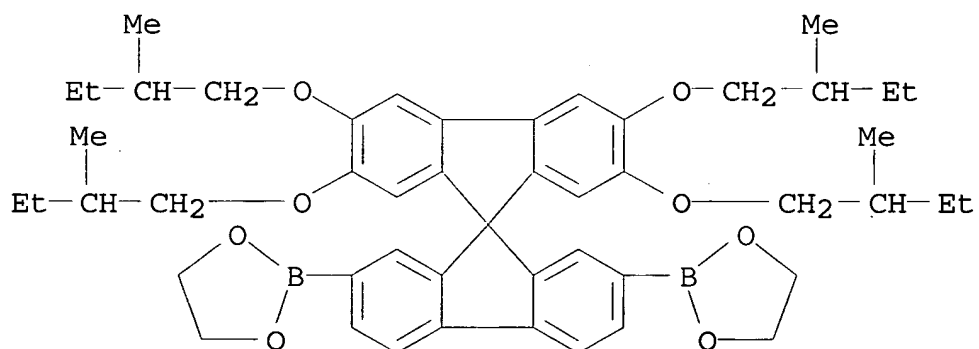
CMF C61 H66 Br2 O4



CM 4

CRN 396123-43-6

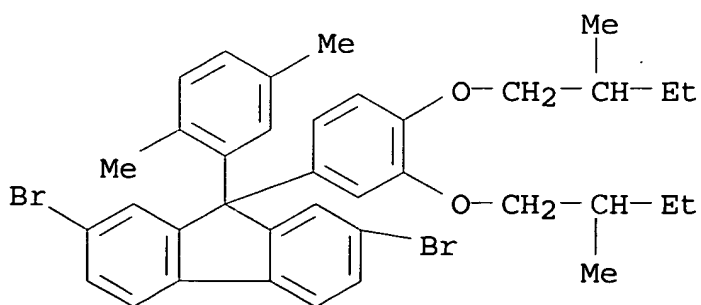
CMF C49 H62 B2 O8



CM 5

CRN 396123-39-0

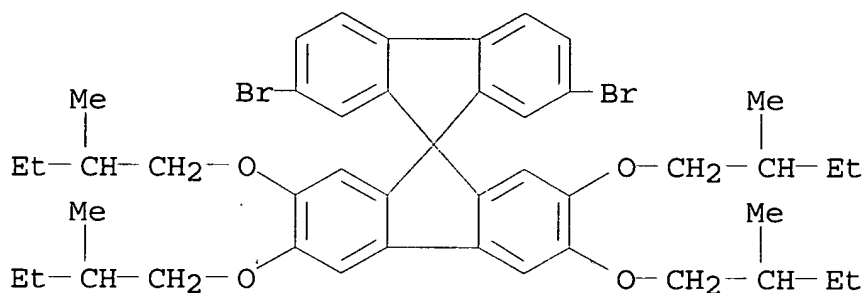
CMF C37 H40 Br2 O2



CM 6

CRN 395059-23-1

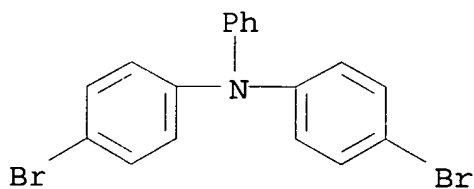
CMF C45 H54 Br2 O4



CM 7

CRN 81090-53-1

CMF C18 H13 Br2 N



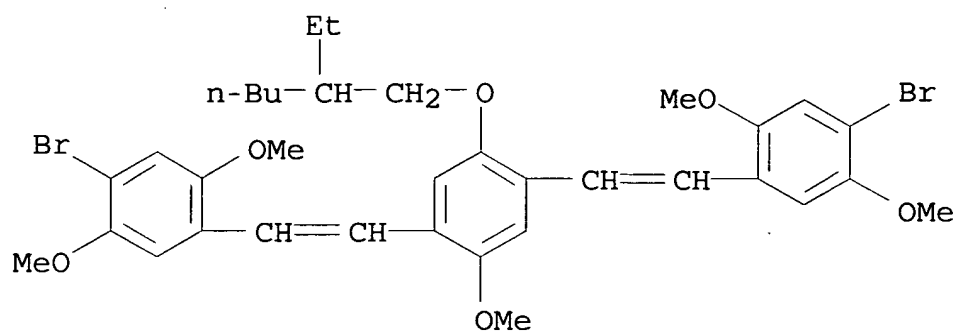
RN 844701-64-0 HCA

CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(4-bromophenyl)-N,N'-bis[4-(1,1-dimethylethyl)phenyl]-, polymer with 1,4-bis[2-(4-bromo-2,5-dimethoxyphenyl)ethenyl]-2-[(2-ethylhexyl)oxy]-5-methoxybenzene, 9-[3,4-bis(2-methylbutoxy)phenyl]-2,7-dibromo-9-(2,5-dimethylphenyl)-9H-fluorene and 2,2'-[2',3',6',7'-tetrakis(2-methylbutoxy)-9,9'-spirobi[9H-fluorene]-2,7-diyl]bis[1,3,2-dioxaborolane], block (9CI) (CA INDEX NAME)

CM 1

CRN 501434-75-9

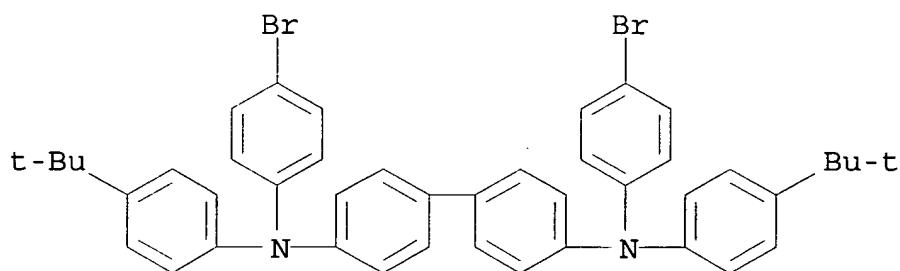
CMF C35 H42 Br2 O6



CM 2

CRN 463944-36-7

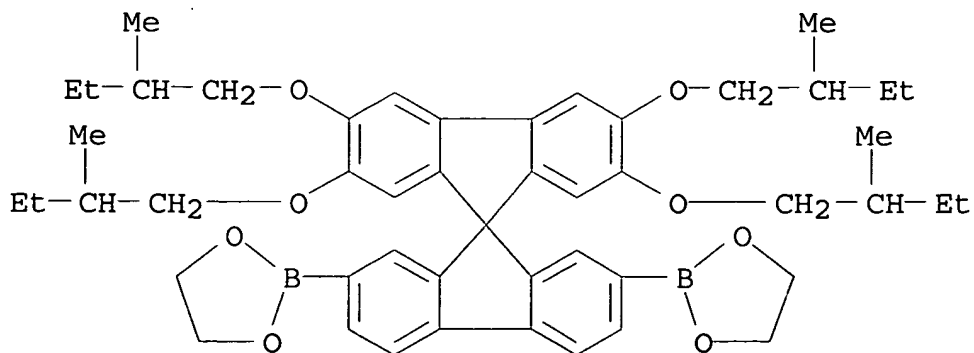
CMF C44 H42 Br2 N2



CM 3

CRN 396123-43-6

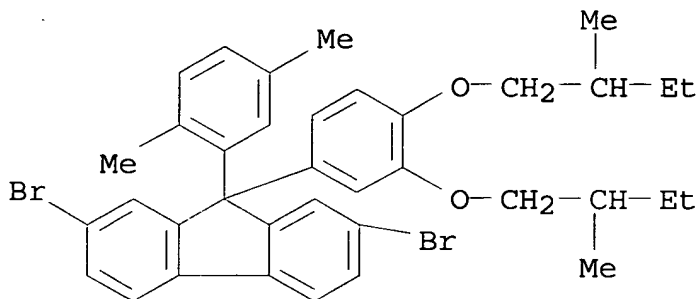
CMF C49 H62 B2 O8



CM 4

CRN 396123-39-0

CMF C37 H40 Br2 O2



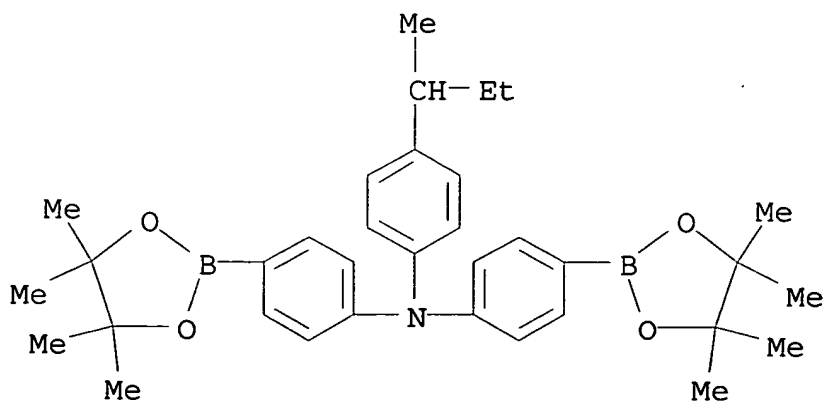
RN 844701-65-1 HCA

CN Benzenamine, 4-bromo-N-(4-bromophenyl)-N-phenyl-, polymer with 1,4-bis[2-(4-bromo-2,5-dimethoxyphenyl)ethenyl]-2-[(2-ethylhexyl)oxy]-5-methoxybenzene, 9-[3,4-bis(2-methylbutoxy)phenyl]-2,7-dibromo-9-(2,5-dimethylphenyl)-9H-fluorene, 2',7'-dibromo-2,3,6,7-tetrakis(2-methylbutoxy)-9,9'-spirobi[9H-fluorene], 4-(1-methylpropyl)-N,N-bis[4-(4,4,5,5-tetramethyl-1,3,2-dioxaborolan-2-yl)phenyl]benzenamine and 2,2'-[2',3',6',7'-tetrakis(2-methylbutoxy)-9,9'-spirobi[9H-fluorene]-2,7-diyl]bis[1,3,2-dioxaborolane], block (9CI) (CA INDEX NAME)

CM 1

CRN 844701-60-6

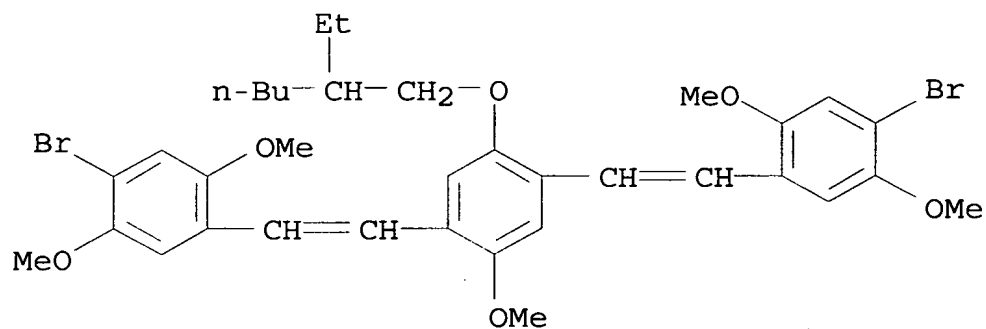
CMF C34 H45 B2 N O4



CM 2

CRN 501434-75-9

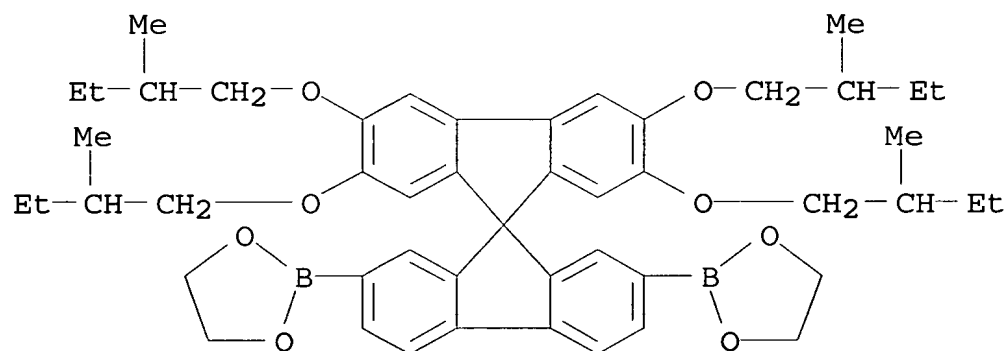
CMF C35 H42 Br2 O6



CM 3

CRN 396123-43-6

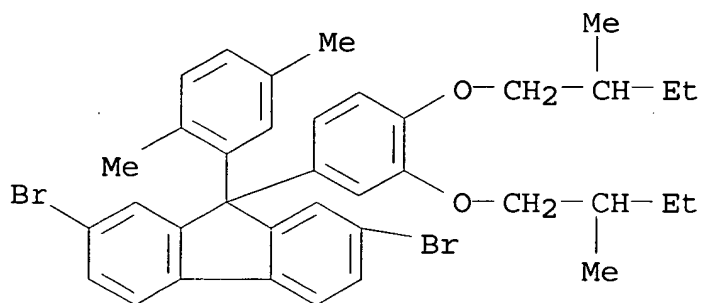
CMF C49 H62 B2 O8



CM 4

CRN 396123-39-0

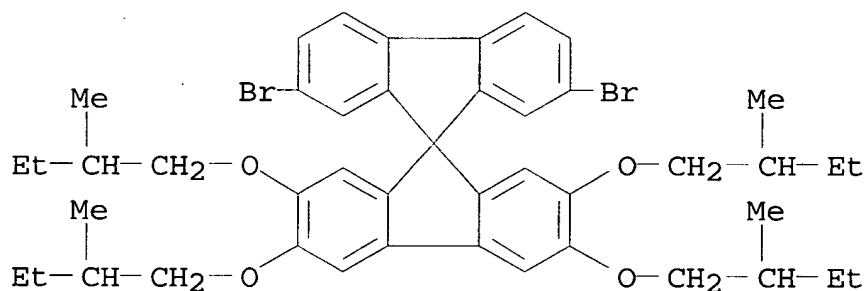
CMF C37 H40 Br2 O2



CM 5

CRN 395059-23-1

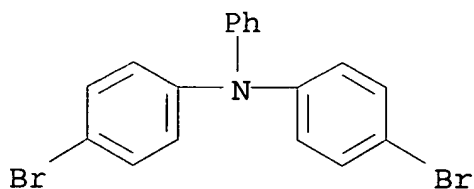
CMF C45 H54 Br2 O4



CM 6

CRN 81090-53-1

CMF C18 H13 Br2 N



IT 844701-59-3P 844701-61-7P 844701-63-9P
844701-64-0P 844701-65-1P

(conjugated; prepn. and use of conjugated block copolymers)

142:81852 Novel materials for electroluminescence. Breuning, Esther; Falcou, Aurelie; Heun, Susanne; Parham, Amir (Covion Organic Semiconductors GmbH, Germany). PCT Int. Appl. WO 2004113468 A1 20041229, 52 pp. DESIGNATED STATES: W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG, TR. (German). CODEN: PIXXD2. APPLICATION: WO 2004-EP6832 20040624. PRIORITY: DE 2003-10328627 20030626.

AB Blends are described which comprise .gtoreq.1 conjugated polymer, a bridged carbazole compd., and .gtoreq.1 triplet emitter. Bridged carbazole derivs. and polymers including bridged carbazole units are also described. Electronic devices (e.g., org. light-emitting diodes, org. solar cells, org. laser diodes, org. optical detectors, or nonlinear optical systems) are described which incorporate the polymers.

IT **815601-64-0P**

(blends contg. conjugated polymers and bridged carbazole derivs. and triplet emitters and the derivs. and polymers and their use)

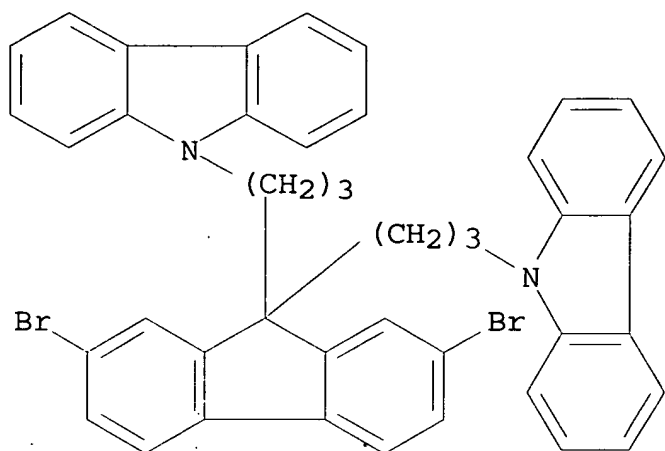
RN 815601-64-0 HCA

CN 9H-Carbazole, 9,9'-[(2,7-dibromo-9H-fluoren-9-ylidene)di-3,1-propanediyl]bis-, polymer with 9-[3,4-bis(2-methylbutoxy)phenyl]-2,7-dibromo-9-(2,5-dimethylphenyl)-9H-fluorene and 2,2'-[2',3',6',7'-tetrakis(2-methylbutoxy)-9,9'-spirobi[9H-fluorene]-2,7-diyl]bis[1,3,2-dioxaborolane] (9CI) (CA INDEX NAME)

CM 1

CRN 815601-55-9

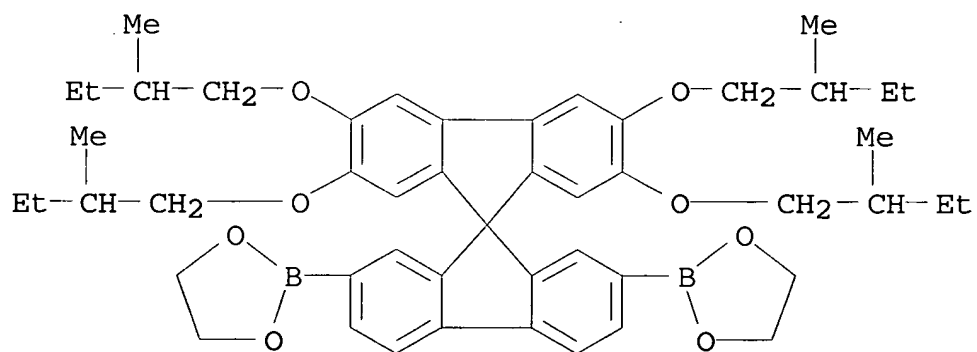
CMF C43 H34 Br2 N2



CM 2

CRN 396123-43-6

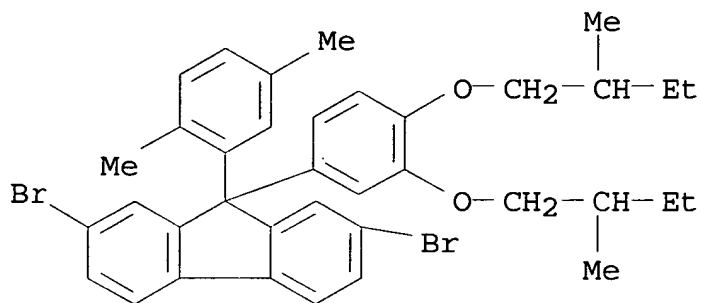
CMF C49 H62 B2 O8



CM 3

CRN 396123-39-0

CMF C37 H40 Br2 O2



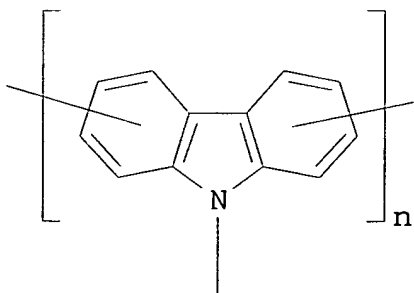
IT 815601-64-0P

(blends contg. conjugated polymers and bridged carbazole derivs. and triplet emitters and the derivs. and polymers and their use)

L46 ANSWER 5 OF 28 HCA COPYRIGHT 2005 ACS on STN

142:29538 Host materials for triplet emitters. Anon. (Neth.). IP.com Journal, 4(1), 26 (No. IPCOM000021063D) (English) 19 Dec 2003. IP 21063D 20031219. CODEN: IJPOBX. ISSN: 1533-0001. PRIORITY: IP 2003-21063D 20031219. Publisher: IP.com, Inc..

GI



I

AB Carbazole compds. are described by the general formula I (n .gtoreq. 2) in which each carbazole unit may be (un)substituted with .gtoreq.1 substituents. The carbazole compds. may be combined with light-emitting compds. (e.g., triplet emitter compds.) capable of accepting energy from the carbazole compds. Electroluminescent devices employing the compds. or the light-emitting compd.-carbazole compd. combinations are also described.

IT 801321-08-4P

(oligomeric or polymeric carbazole compds. and luminescent compns. contg. them and electroluminescent devices using them)

RN 801321-08-4 HCA

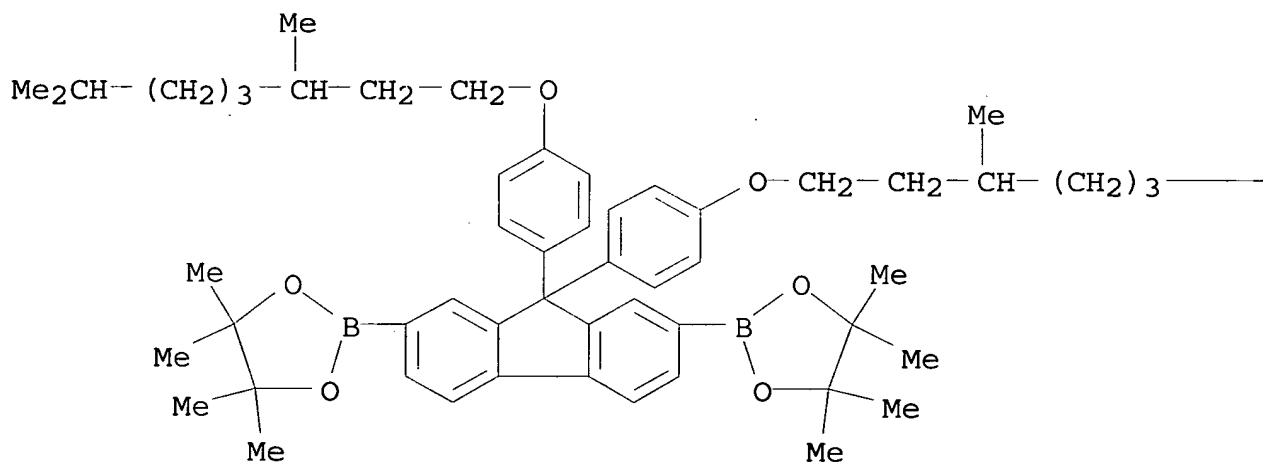
CN 3,3'-Bi-9H-carbazole, 6,6'-dibromo-9,9'-dioctyl-, polymer with 2,2'-[9,9-bis[4-[(3,7-dimethyloctyl)oxy]phenyl]-9H-fluorene-2,7-diyl]bis[4,4,5,5-tetramethyl-1,3,2-dioxaborolane] and 2,7-dibromo-9,9-bis[4-[(3,7-dimethyloctyl)oxy]phenyl]-9H-fluorene (9CI) (CA INDEX NAME)

CM 1

CRN 801321-07-3

CMF C57 H80 B2 O6

PAGE 1-A



PAGE 1-B

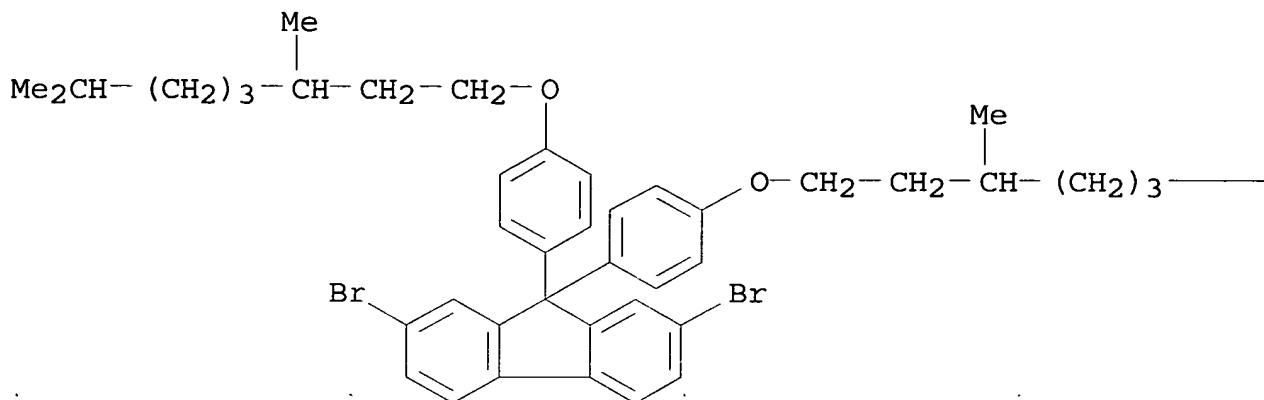
—CHMe₂

CM 2

CRN 801321-06-2

CMF C45 H56 Br2 O2

PAGE 1-A



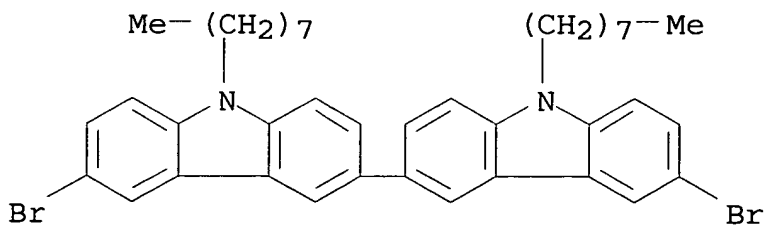
PAGE 1-B

—CHMe₂

CM 3

CRN 726169-76-2

CMF C40 H46 Br2 N2



IT 801321-08-4P

(oligomeric or polymeric carbazole compds. and luminescent compns. contg. them and electroluminescent devices using them)

L46 ANSWER 6 OF 28 HCA COPYRIGHT 2005 ACS on STN

141:207668 Preparation and use of polymers containing carbazole groups and their blends. (Covion Organic Semiconductors GmbH, Germany).

Ger. Offen. DE 10304819 A1 20040819, 31 pp. (German). CODEN:
GWXXBX. APPLICATION: DE 2003-10304819 20030206.

GI

* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *

AB The title polymers, with steep current-voltage curves and useful in light-emitting diodes, are prepd. The reaction of 1-bromo-4-tert-butylbenzene with carbazole in refluxing xylene in the presence of K₃PO₄ and tert-Bu₃P gave 68% 9-(4-tert-butylphenyl)carbazole, bromination of which with N-bromosuccinimide in CH₂Cl₂ at 0.degree. gave 66% corresponding 3,6-dibromo deriv. (I). Refluxing monomer II, monomer III 1.6, I 0.8, and N,N'-bis(4-bromophenyl)-N,N'-bis(4-tert-butylphenyl)-4,4'-biphenyldiamine 0.8 mmol in dioxane-PhMe-H₂O in the presence of K phosphate, Pd(OAc)₂, and (o-MeC₆H₄)₃P and end-capping with 100 mg benzeneboronic acid and 0.2 mL PhBr gave 96% polymer with no.-av. mol. wt. 156,000 and polydispersity 3.7.

IT 741293-58-3 741293-61-8
(prepn. and use of polymers contg. carbazole groups and their blends)

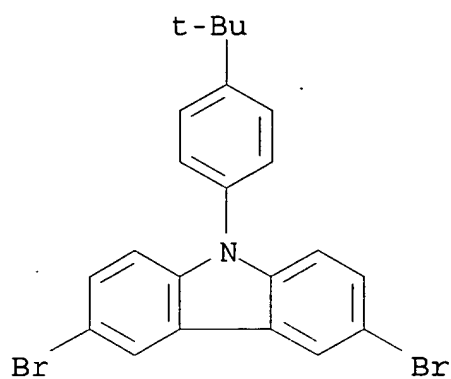
RN 741293-58-3 HCA

CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(4-bromophenyl)-N,N'-bis[4-(1,1-dimethylethyl)phenyl]-, polymer with 9-[3,4-bis(2-methylbutoxy)phenyl]-2,7-dibromo-9-(2,5-dimethylphenyl)-9H-fluorene, 3,6-dibromo-9-[4-(1,1-dimethylethyl)phenyl]-9H-carbazole and 2,2'-[2',3',6',7'-tetrakis(2-methylbutoxy)-9,9'-spirobi[9H-fluorene]-2,7-diyl]bis[1,3,2-dioxaborolane] (9CI) (CA INDEX NAME)

CM 1

CRN 741293-42-5

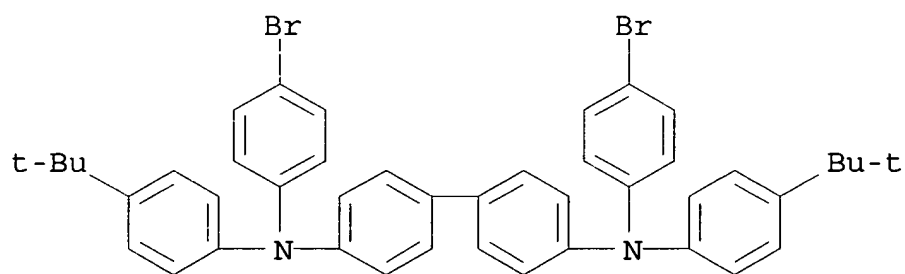
CMF C22 H19 Br2 N



CM 2

CRN 463944-36-7

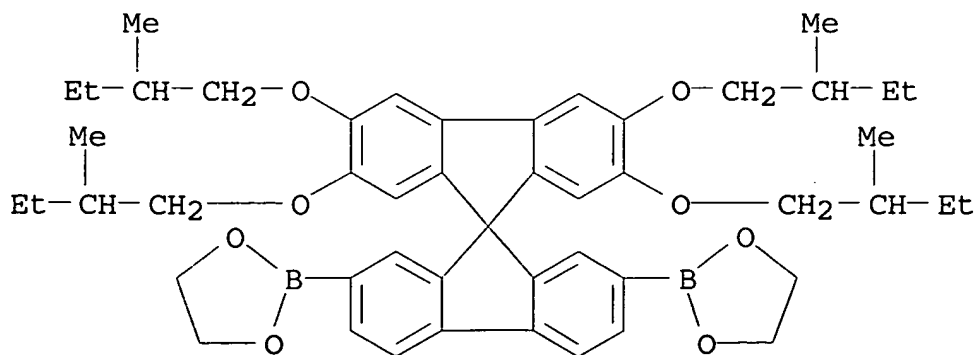
CMF C44 H42 Br2 N2



CM 3

CRN 396123-43-6

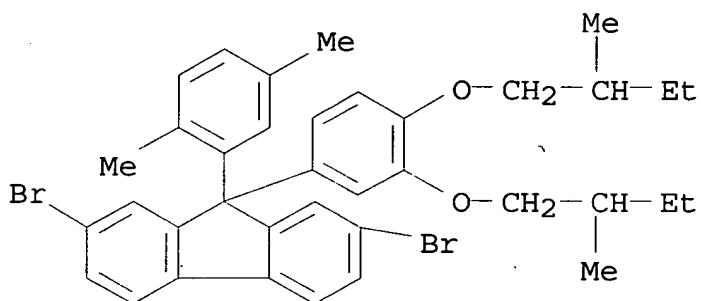
CMF C49 H62 B2 O8



CM 4

CRN 396123-39-0

CMF C37 H40 Br2 O2



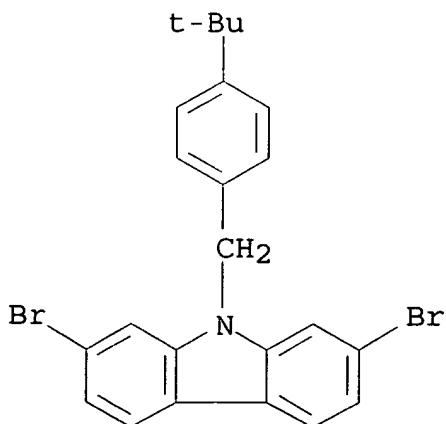
RN 741293-61-8 HCA

CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(4-bromophenyl)-N,N'-bis[4-(1,1-dimethylethyl)phenyl]-, polymer with 2',7'-bis[2-(4-bromophenyl)ethenyl]-2,3,6,7-tetrakis(2-methylbutoxy)-9,9'-spirobi[9H-fluorene], 9-[3,4-bis(2-methylbutoxy)phenyl]-2,7-dibromo-9-(2,5-dimethylphenyl)-9H-fluorene, 2,7-dibromo-9-[[4-(1,1-dimethylethyl)phenyl)methyl]-9H-carbazole and 2,2'-[2',3',6',7'-tetrakis(2-methylbutoxy)-9,9'-spirobi[9H-fluorene]-2,7-diyl]bis[1,3,2-dioxaborolane] (9CI) (CA INDEX NAME)

CM 1

CRN 741293-49-2

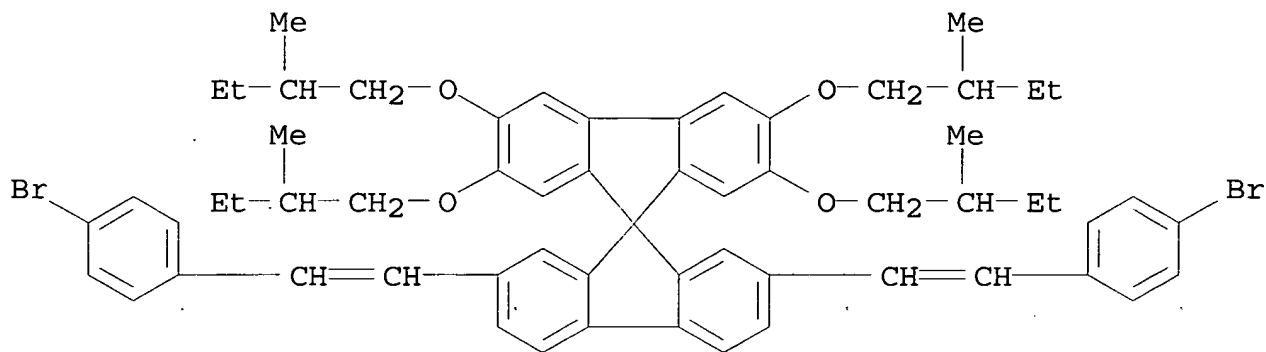
CMF C23 H21 Br2 N



CM 2

CRN 501434-76-0

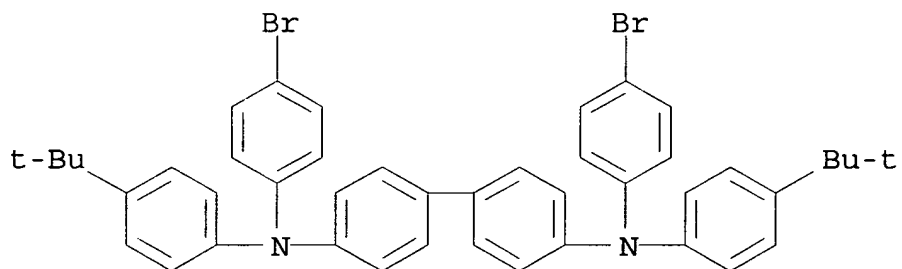
CMF C61 H66 Br2 O4



CM 3

CRN 463944-36-7

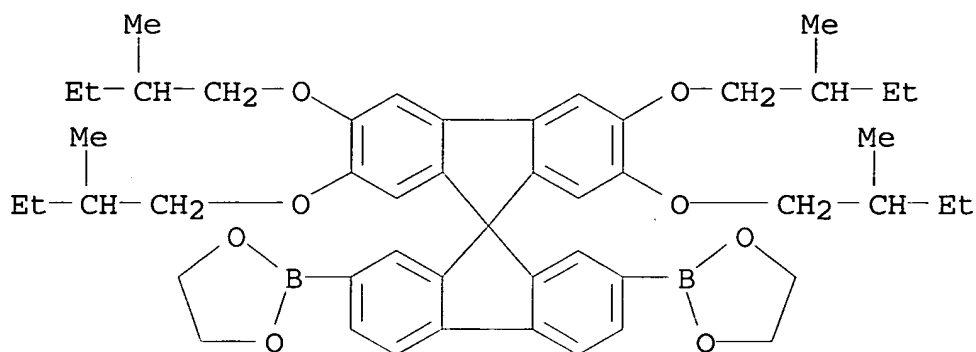
CMF C44 H42 Br2 N2



CM 4

CRN 396123-43-6

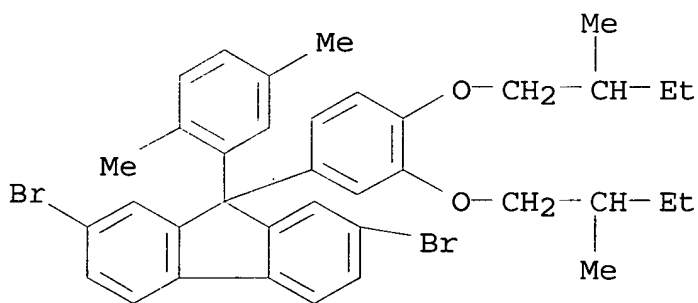
CMF C49 H62 B2 O8



CM 5

CRN 396123-39-0

CMF C37 H40 Br2 O2



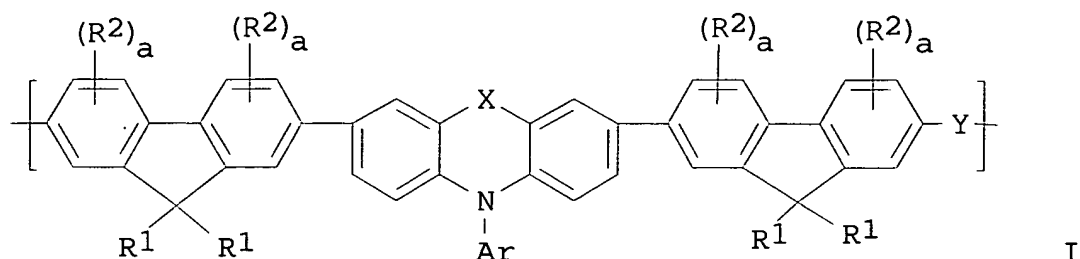
IT 741293-58-3 741293-61-8

(prepn. and use of polymers contg. carbazole groups and their blends)

L46 ANSWER 7 OF 28 HCA COPYRIGHT 2005 ACS on STN

141:89884 Tricyclic arylamine containing polymers and electronic devices therefrom. Inbasekaran, Michael; Cheng, Yang; Gaynor, Scott; Hudack, Michelle L.; Wang, Chun; Welsh, Dean M.; Wu, Weishi (USA). U.S. Pat. Appl. Publ. US 2004127666 A1 20040701, 21 pp. (English). CODEN: USXXCO. APPLICATION: US 2002-324270 20021219.

GI



AB A compn. comprises a polymer having a repeat unit of I wherein R1 is independently in each occurrence H, C1-40 hydrocarbyl or C3-40 hydrocarbyl contg. one or more S, N, O, P or Si atoms, or both of R1 together with the 9-carbon on the fluorene, may form a C5-20 ring structure which may contain one or more S, N, or O atoms; R2 is independently in each occurrence C1-20 hydrocarbyl, C 1-20 hydrocarbyloxy, C1-20 thioether, C1-20 hydrocarbyloxycarbonyl, C1-20 hydrocarbylcarbonyloxy, or cyano; a is independently in each occurrence, 0 or 1; X is O, S, SO₂, C(R3)₂ or N-R3 wherein R3 is aryl or substituted aryl of C6 to C40, aralkyl of C6 to C24, or alkyl of C1 to C24. Preferably R3 is aryl of C6 to C24 and more preferably R3 is an alkylated aryl group of C6 to C24; Ar is an aryl or heteroaryl group of C6 to C40 or substituted aryl or heteroaryl group of C6 to C40, preferably C6-C24, and most preferably C6-C14. Y is a conjugated moiety that can vary in each occurrence of the repeat unit.

IT **713761-63-8DP**, bromobenzene-terminated compd.
(manuf. of tricyclic arylamine contg. polymers and electronic devices made from them)

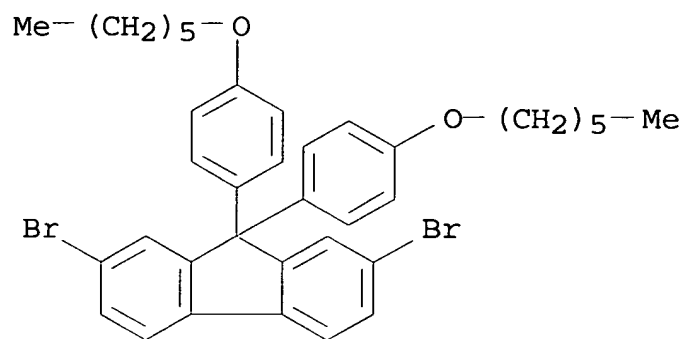
RN 713761-63-8 HCA

CN 10H-Phenoxazine, 3,7-dibromo-10-(4-butylphenyl)-, polymer with 2,7-dibromo-9,9-bis[4-(hexyloxy)phenyl]-9H-fluorene and 2,2'-(9,9-dioctyl-9H-fluorene-2,7-diyl)bis[1,3,2-dioxaborolane] (9CI) (CA INDEX NAME)

CM 1

CRN 690994-34-4

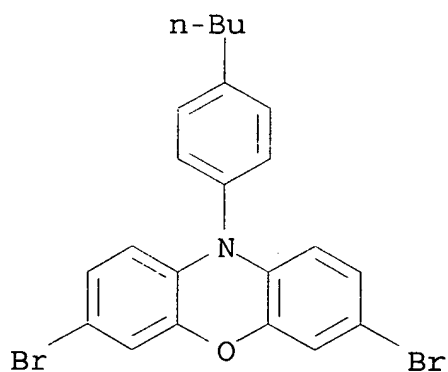
CMF C37 H40 Br2 O2



CM 2

CRN 536762-20-6

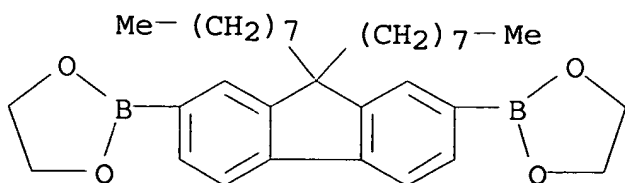
CMF C22 H19 Br2 N O



CM 3

CRN 210347-49-2

CMF C33 H48 B2 O4



IT 713761-63-8DP, bromobenzene-terminated compd.
(manuf. of tricyclic arylamine contg. polymers and electronic devices made from them)

L46 ANSWER 8 OF 28 HCA COPYRIGHT 2005 ACS on STN

140:375687 Arylamine-containing conjugated polymers, their preparation and use.. Buesing, Arne; Breuning, Ester; Spreitzer, Hubert; Becker, Heinrich; Haase, Corinna (Covion Organic Semiconductors GmbH, Germany). Ger. Offen. DE 10249723 A1 20040506, 25 pp. (German). CODEN: GWXXBX. APPLICATION: DE 2002-10249723 20021025.

GI

* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *

AB The title polymers, useful as electroluminescent materials in passive matrix display (OLEDs, OFETs, OTFTs, solar cells and org. integrated circuits) contain .gtoreq. 1 mol.% of the units I (Ar1, Ar3 = optionally substituted C2-40 arom. and heteroarom. rings, Ar2, Ar4 = Ar1, Ar3 or optionally substituted stilbenylene- or tolylene-fragments, Ar-kond = conjugated arom. system, consisting of .gtoreq. 2 rings and contg. 9-40 C- or hetero-atoms) among other structure units including arom. and heteroarom. fragments, metallo-complexes and complexes of transition metals and metals of VIII-X group exhibit improved operation life span and high luminescence efficiency esp. at high radiation d. Thus, heating 1.6103 g of II, 1.0825 g of III, 0.3098 g of N,N'-Bis-(4-bromophenyl)-N,N'-bis-(4-methylnaphthyl)biphenyl-4,4'-diamine and 1.96 g of K2HPO4 in a mixt. dioxane/toluene/H2O in the presence of Pd(OAc)2 and P(o-tolyl)3 for 2.5 h gives (after purifn. and distn.) polymer with mol. wt. 1,300,000 having life time 2500 h at radiation d. 100 Cd/m2.

IT 681829-72-1P 681829-73-2P

(arylamine-contg. conjugated polymers with improved operation life span and high luminescence efficiency useful in passive matrix display)

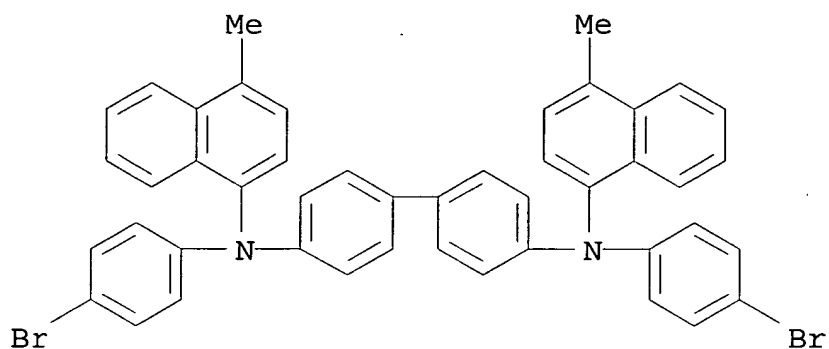
RN 681829-72-1 HCA

CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(4-bromophenyl)-N,N'-bis(4-methyl-1-naphthalenyl)-, polymer with 9-[3,4-bis(2-methylbutoxy)phenyl]-2,7-dibromo-9-(2,5-dimethylphenyl)-9H-fluorene and 2,2'-[2',3',6',7'-tetrakis(2-methylbutoxy)-9,9'-spirobi[9H-fluorene]-2,7-diyl]bis[1,3,2-dioxaborolane] (9CI) (CA INDEX NAME)

CM 1

CRN 681829-69-6

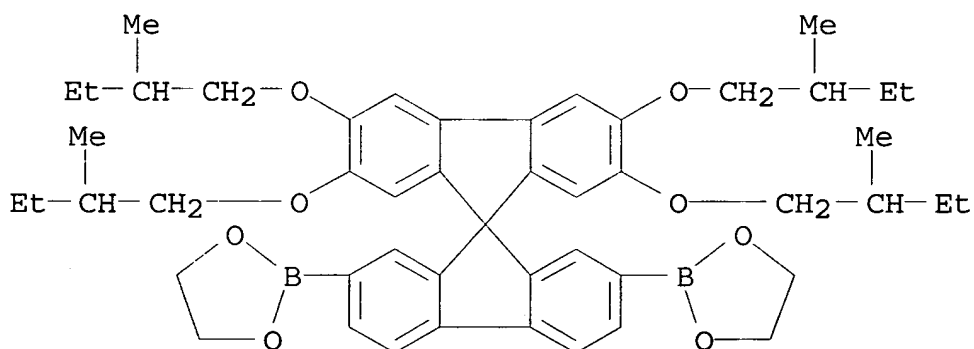
CMF C46 H34 Br2 N2



CM 2

CRN 396123-43-6

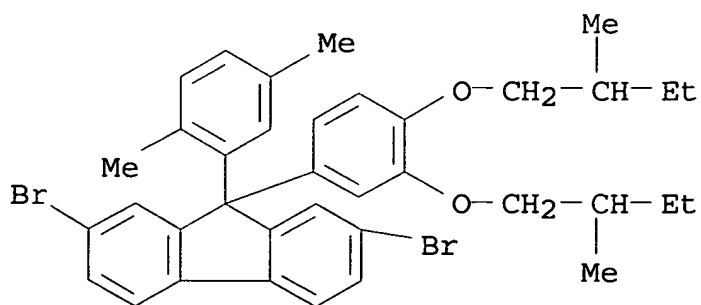
CMF C49 H62 B2 O8



CM 3

CRN 396123-39-0

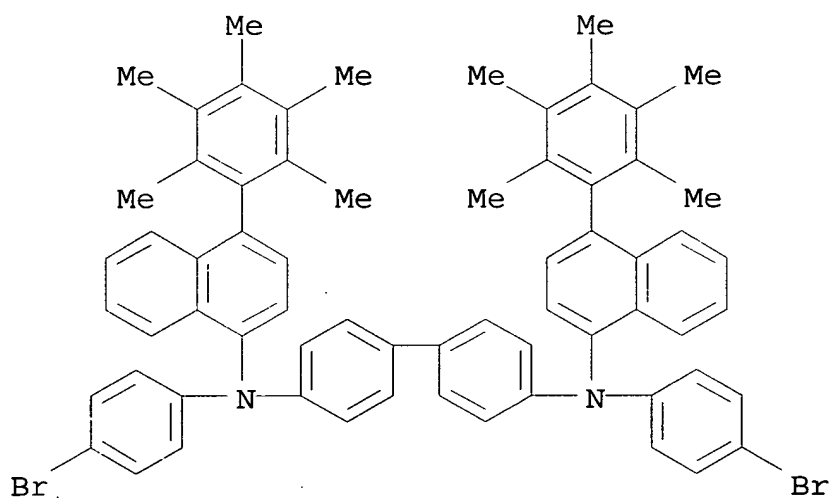
CMF C37 H40 Br2 O2



RN 681829-73-2 HCA
 CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(4-bromophenyl)-N,N'-bis[4-(pentamethylphenyl)-1-naphthalenyl]-, polymer with 2',7'-bis[2-(4-bromophenyl)ethenyl]-2,3,6,7-tetrakis(2-methylbutoxy)-9,9'-spirobi[9H-fluorene], 9-[3,4-bis(2-methylbutoxy)phenyl]-2,7-dibromo-9-(2,5-dimethylphenyl)-9H-fluorene and 2,2'-[2',3',6',7'-tetrakis(2-methylbutoxy)-9,9'-spirobi[9H-fluorene]-2,7-diyl]bis[1,3,2-dioxaborolane] (9CI) (CA INDEX NAME)

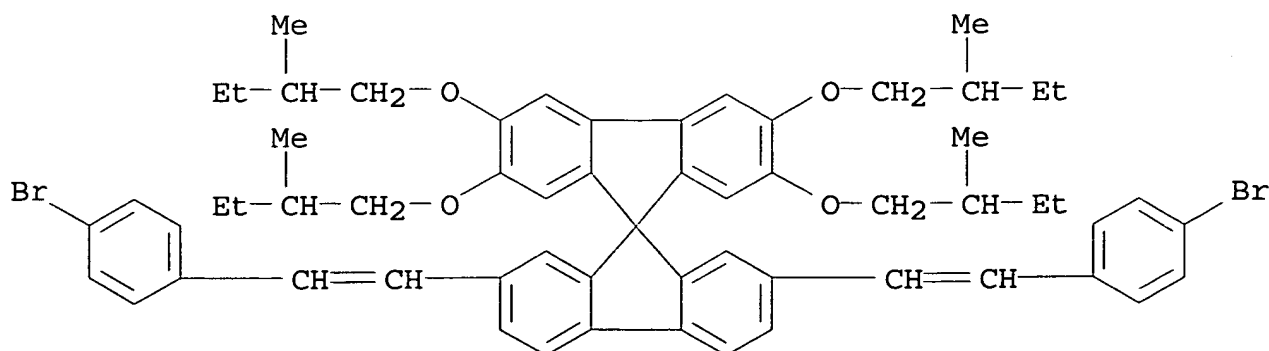
CM 1

CRN 681829-68-5
 CMF C66 H58 Br2 N2



CM 2

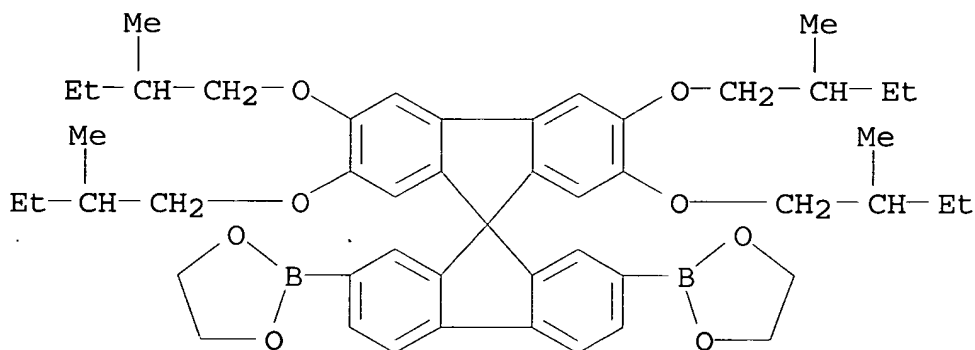
CRN 501434-76-0
 CMF C61 H66 Br2 O4



CM 3

CRN 396123-43-6

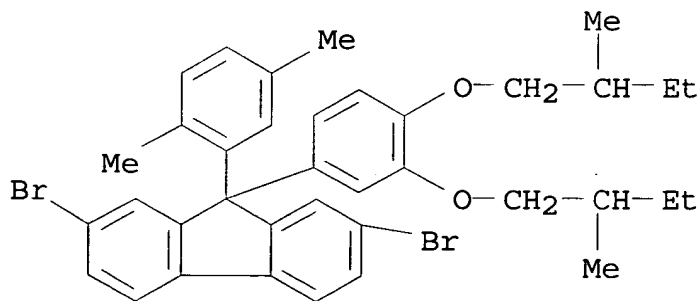
CMF C49 H62 B2 O8



CM 4

CRN 396123-39-0

CMF C37 H40 Br2 O2



IT 681829-72-1P 681829-73-2P

(arylamine-contg. conjugated polymers with improved operation life span and high luminescence efficiency useful in passive matrix display)

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139:298935 Highly Efficient Blue-Light-Emitting Diodes from Polyfluorene Containing Bipolar Pendant Groups. Shu, Ching-Fong; Dodda, Rajasekhar; Wu, Fang-Iy; Liu, Michelle S.; Jen, Alex K.-Y. (Department of Applied Chemistry, National Chiao Tung University, Hsin-Chu, Taiwan, 30035, Peop. Rep. China). *Macromolecules*, 36(18), 6698-6703 (English) 2003. CODEN: MAMOBX. ISSN:

0024-9297. Publisher: American Chemical Society.

AB A highly efficient blue-light-emitting copolymer with bulky hole-transporting triphenylamine (TPA) and electron-transporting oxadiazole (OXD) pendant groups at the C-9 position of fluorene was synthesized. The results from luminescence and electrochem. measurements reveal that both the side chains and the polyfluorene main chain retain their own electronic characteristics in the copolymer. It shows a pure blue emission with no aggregates or excimers formed even after being annealed at 150.degree. under N for 20 h. It demonstrates improved charge injection and balanced charge transport in electroluminescence. The max. external quantum efficiency of a single-layer device using this copolymer as the emitting layer is 1.21% (at a brightness of 354 cd/m2 with driving voltage of 7.6 V). The max. luminance of the device reaches 4080 cd/m2 at a bias of 12.0 V and a c.d. of 640 mA/cm2.

IT 607708-20-3P

(prepn. and luminescence and NMR and UV spectra and electrochem. reactions and thermal decompn. and use in blue-emitting LED of)

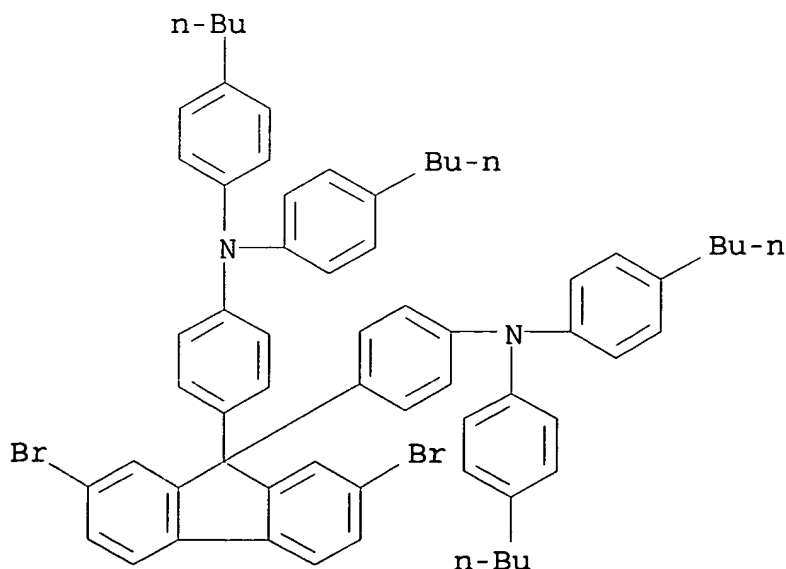
RN 607708-20-3 HCA

CN Benzenamine, 4,4'-(2,7-dibromo-9H-fluoren-9-ylidene)bis[N,N-bis(4-butylphenyl)-, polymer with 2,2'-[(2,7-dibromo-9H-fluoren-9-ylidene)di-4,1-phenylene]bis[5-[4-(1,1-dimethylethyl)phenyl]-1,3,4-oxadiazole] and 2,2'-(9,9-dioctyl-9H-fluorene-2,7-diyl)bis[4,4,5,5-tetramethyl-1,3,2-dioxaborolane] (9CI) (CA INDEX NAME)

CM 1

CRN 607708-19-0

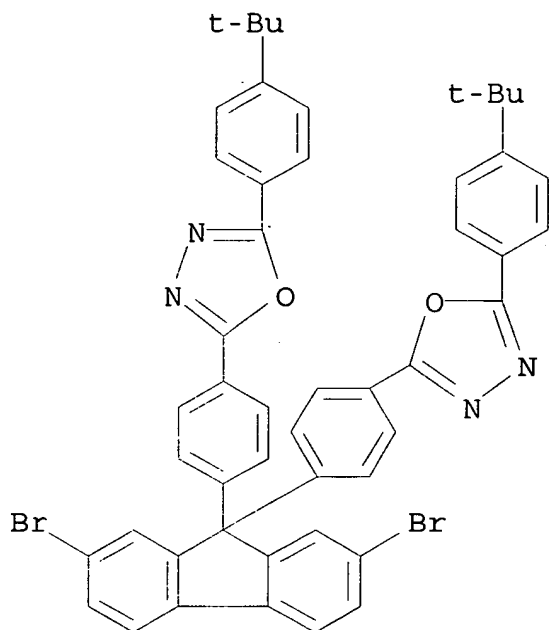
CMF C65 H66 Br2 N2



CM 2

CRN 492466-40-7

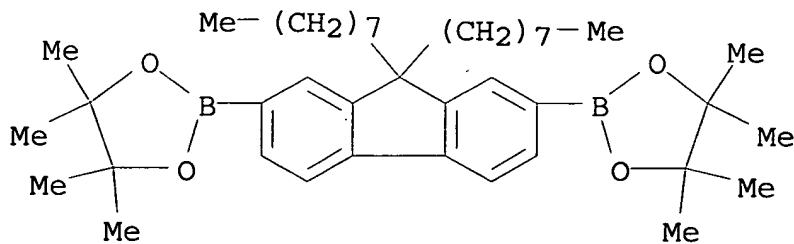
CMF C49 H40 Br2 N4 O2



CM 3

CRN 196207-58-6

CMF C41 H64 B2 O4



IT 607708-20-3P

(prepn. and luminescence and NMR and UV spectra and electrochem. reactions and thermal decompn. and use in blue-emitting LED of)

139:298915 Bright red-emitting electrophosphorescent device using osmium complex as a triplet emitter. Kim, Joo Hyun; Liu, Michelle S.; Jen, Alex K.-Y.; Carlson, Brenden; Dalton, Larry R.; Shu, Ching-Fong; Dodda, Rajasekhar (Department of Materials Science and Engineering, University of Washington, Seattle, WA, 98195, USA). Applied Physics Letters, 83(4), 776-778 (English) 2003. CODEN: APPLAB. ISSN: 0003-6951. Publisher: American Institute of Physics.

AB Efficient and bright double-layer light-emitting devices were fabricated using the Os (Os) complex as the triplet emissive dopant in both a blue-emitting polyfluorene deriv. (PF-TPA-OXD) contg. hole-transporting triphenylamine (TPA) and electron-transporting oxadiazole (OXD) as side chains and a blend of 2-(4-t-butylphenyl)-5-(4-biphenyl)-1,3,4-oxadiazole (PBD) in poly(N-vinylcarbazole) (PVK). Due to a balanced charge injection and transport in PF-TPA-OXD and very efficient energy transfer from this polymer to the Os complex, the resulting device (ITO/HTL/OsCF3:PF-TPA-OXD/Ca/Ag) reaches a max. external quantum efficiency of 2.1% with a peak brightness of 2920 cd/m2. These results are significantly higher than those obtained from the commonly used host, PVK:PBD (0.49% and 1270 cd/m2).

IT 607708-20-3

(PF-TPA-OXD; bright red-emitting electrophosphorescent device using osmium complex as triplet emitter and)

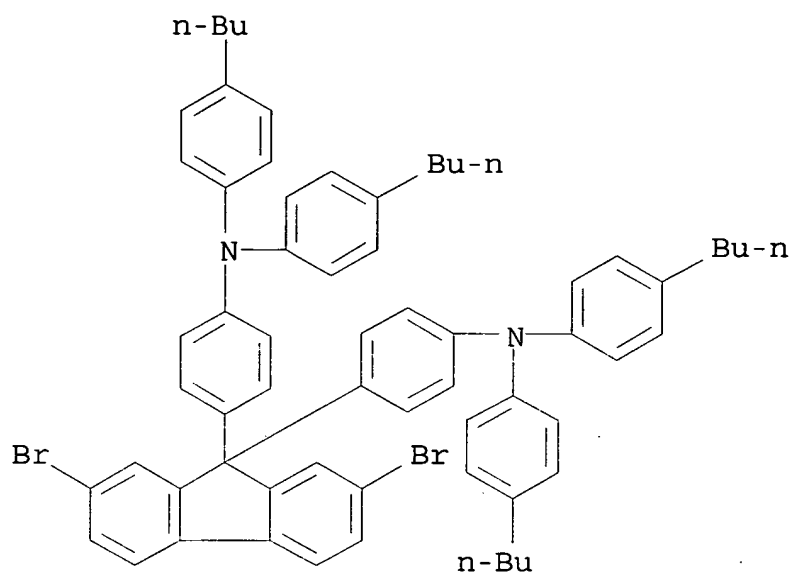
RN 607708-20-3 HCA

CN Benzenamine, 4,4'-(2,7-dibromo-9H-fluoren-9-ylidene)bis[N,N-bis(4-butylphenyl)-, polymer with 2,2'-[(2,7-dibromo-9H-fluoren-9-ylidene)di-4,1-phenylene]bis[5-[4-(1,1-dimethylethyl)phenyl]-1,3,4-oxadiazole] and 2,2'-(9,9-dioctyl-9H-fluorene-2,7-diyl)bis[4,4,5,5-tetramethyl-1,3,2-dioxaborolane] (9CI) (CA INDEX NAME)

CM 1

CRN 607708-19-0

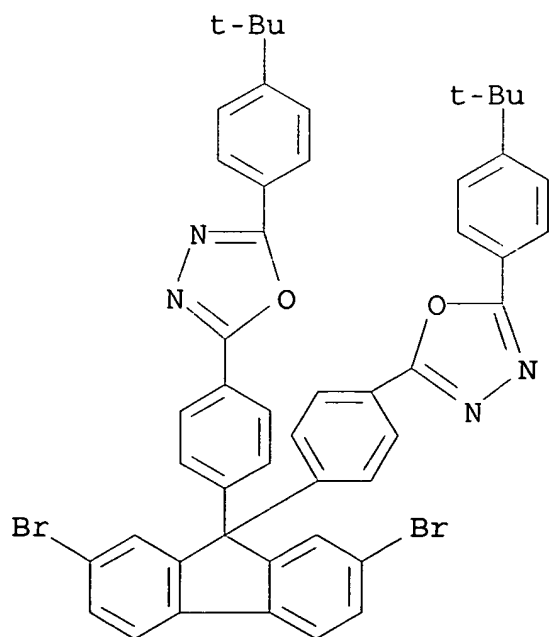
CMF C65 H66 Br2 N2



CM 2

CRN 492466-40-7

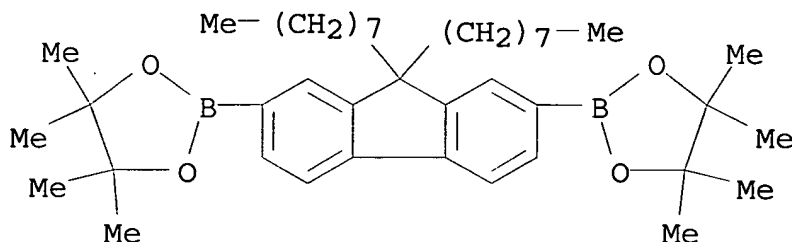
CMF C49 H40 Br2 N4 O2



CM 3

CRN 196207-58-6

CMF C41 H64 B2 O4



IT 607708-20-3

(PF-TPA-OXD; bright red-emitting electrophosphorescent device using osmium complex as triplet emitter and)

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139:36985 Process for producing aryl-aryl coupled compounds and polymers. Treacher, Kevin; Stoessel, Philipp; Spreitzer, Hubert; Becker, Heinrich; Falcou, Aurelie (Covion Organic Semiconductors GmbH, Germany). PCT Int. Appl. WO 2003048225 A2 20030612, 31 pp. DESIGNATED STATES: W: CN, JP, KR, US; RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR. (German). CODEN: PIXXD2. APPLICATION: WO 2002-EP13584 20021202. PRIORITY: DE 2001-10159946 20011206.

AB The efficiency of triphenylphosphine-free Pd compd.-base mixts. as catalysts in the Suzuki reaction of halo- or sulfonyloxy-functional aryl or heteroaryl compds. with arom. or heteroarom. boron compds. is improved by using a multiphase solvent mixt. contg. .gtoreq.0.1 vol.% water-sol. org. compd., water-insol. org. compd., and water, with the stipulation that when alcs. or carbonyl compds. are used, they do not have .alpha.-H atoms. A typical polymer was manufd. by polymn. of 50 mol% 2,3,4,7-tetrakis(2-methylbutoxy)spirobifluorene-2,7-bis(Et boronate) with 50 mol% 2,7-dibromo-9-(2,5-dimethylphenyl)-9-[3,4-bis(2-methylbutoxy)phenyl]fluorene in PhMe 15.6, dioxane 46.9, and water 8.5 mL in the presence of 4.56 mg tri-o-tolylphosphine, 0.56 mg Pd(OAc)2, and 4.89 g K3PO4.H2O.

IT 463944-39-0P 540791-05-7P 540791-09-1P

(manuf. of spirobifluorene-contg. compds. and polymers in presence of bases and palladium compds. as aryl-aryl Suzuki coupling reaction catalysts in multiphase solvent mixts.)

RN 463944-39-0 HCA

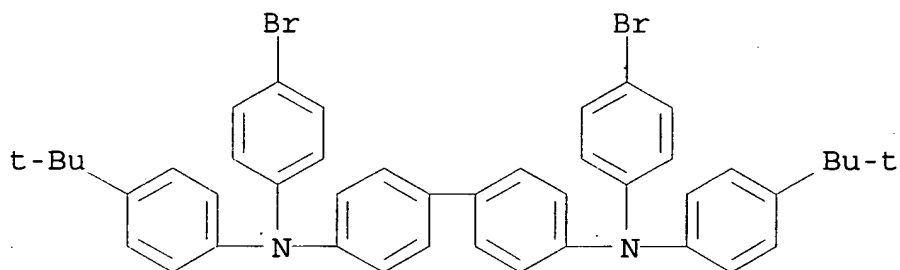
CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(4-bromophenyl)-N,N'-bis[4-(1,1-dimethylethyl)phenyl]-, polymer with 9-[3,4-bis(2-methylbutoxy)phenyl]-2,7-dibromo-9-(2,5-dimethylphenyl)-9H-fluorene and 2,2'-[2',3',6',7'-tetrakis(2-methylbutoxy)-9,9'-spirobi[9H-

fluorene]-2,7-diyl]bis[1,3,2-dioxaborolane] (9CI) (CA INDEX NAME)

CM 1

CRN 463944-36-7

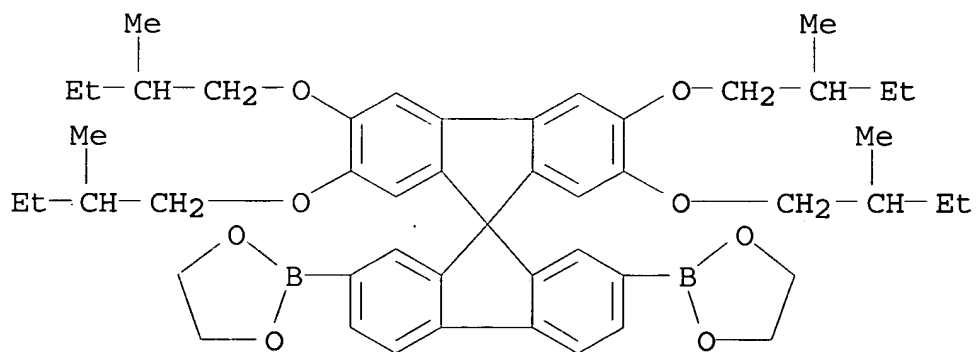
CMF C44 H42 Br2 N2



CM 2

CRN 396123-43-6

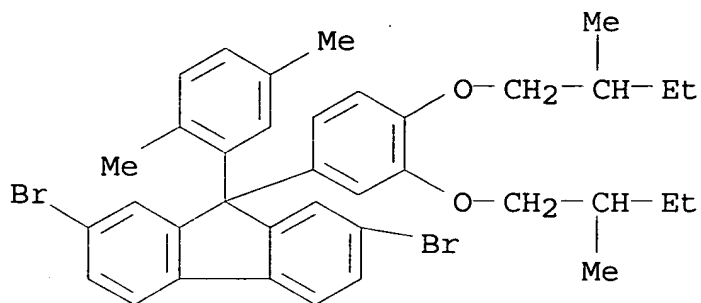
CMF C49 H62 B2 O8



CM 3

CRN 396123-39-0

CMF C37 H40 Br2 O2



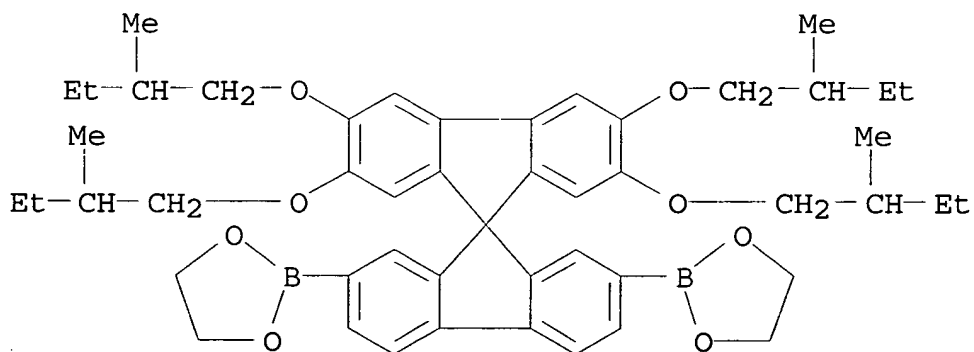
RN 540791-05-7 HCA

CN 1,3,2-Dioxaborolane, 2,2'-[2',3',6',7'-tetrakis(2-methylbutoxy)-9,9'-spirobi[9H-fluorene]-2,7-diyl]bis-, polymer with 9-[3,4-bis(2-methylbutoxy)phenyl]-2,7-dibromo-9-(2,5-dimethylphenyl)-9H-fluorene (9CI) (CA INDEX NAME)

CM 1

CRN 396123-43-6

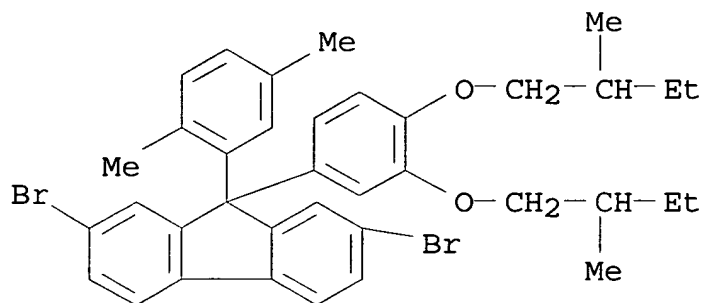
CMF C49 H62 B2 O8



CM 2

CRN 396123-39-0

CMF C37 H40 Br2 O2

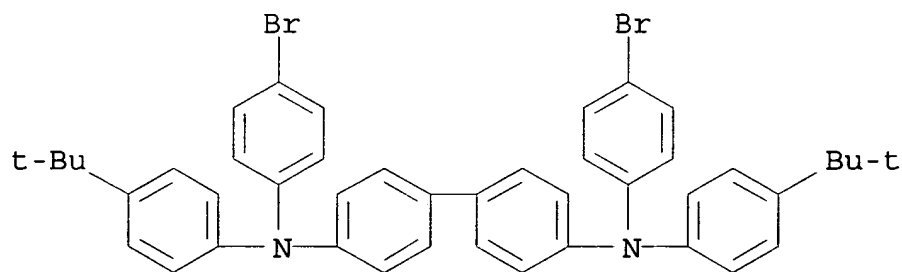


RN 540791-09-1 HCA
 CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(4-bromophenyl)-N,N'-bis[4-(1,1-dimethylethyl)phenyl]-, polymer with 9-[3,4-bis(2-methylbutoxy)phenyl]-2,7-dibromo-9-(2,5-dimethylphenyl)-9H-fluorene and 2,2'-[2',3',6',7'-tetrakis(2-methylbutoxy)-9,9'-spirobi[9H-fluorene]-2,7-diyl]bis[1,3,2-dioxaborolane], block (9CI) (CA INDEX NAME)

CM 1

CRN 463944-36-7

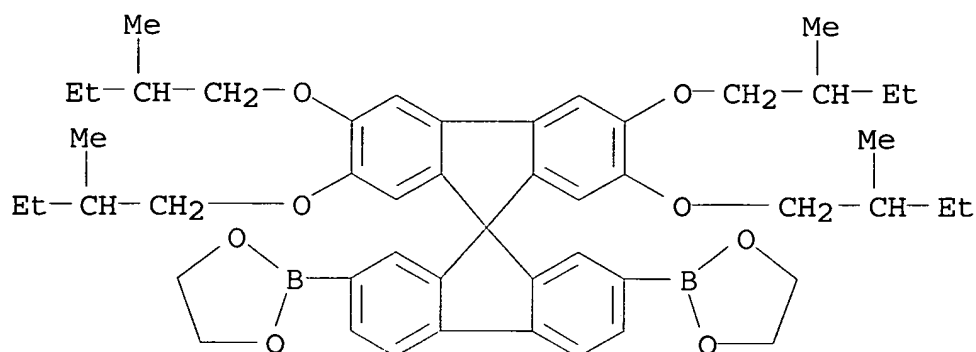
CMF C44 H42 Br2 N2



CM 2

CRN 396123-43-6

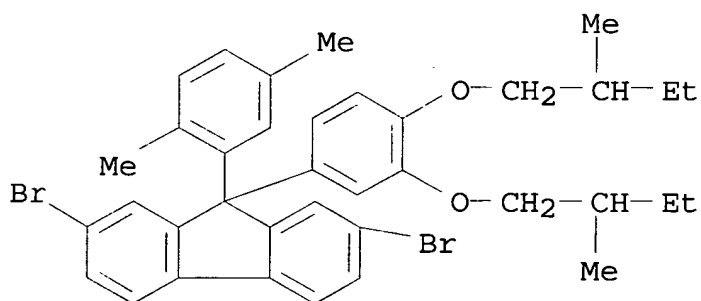
CMF C49 H62 B2 O8



CM 3

CRN 396123-39-0

CMF C37 H40 Br2 O2



IT 463944-39-0P 540791-05-7P 540791-09-1P

(manuf. of spirobifluorene-contg. compds. and polymers in presence of bases and palladium compds. as aryl-aryl Suzuki coupling reaction catalysts in multiphase solvent mixts.)

L46 ANSWER 12 OF 28 HCA COPYRIGHT 2005 ACS on STN

138:376295 Multicolor organic light-emitting displays by solution processing. Mueller, C. David; Falcou, Aurelie; Reckefuss, Nina; Rojahn, Markus; Wiederhirn, Valerie; Rudati, Paula; Frohne, Holger; Nuyken, Oskar; Becker, Heinrich; Meerholz, Klaus (Department Chemie, Universitaet Muenchen, Munich, 81377, Germany). Nature (London, United Kingdom), 421(6925), 829-833 (English) 2003. CODEN: NATUAS. ISSN: 0028-0836. Publisher: Nature Publishing Group.

AB Org. light-emitting diodes (OLEDs) show promise for applications as high-quality self-emissive displays for portable devices such as cellular phones and personal organizers. Although monochrome operation is sufficient for some applications, the extension to

multicolor devices-such as RGB (red, green, blue) matrix displays-could greatly enhance their technol. impact. Multicolor OLEDs have been successfully fabricated by vacuum deposition of small electroluminescent mols., but soln. processing of larger mols. (electroluminescent polymers) would result in a cheaper and simpler manufg. process. However, it has proved difficult to combine the soln. processing approach with the high-resoln. patterning techniques required to produce a pixelated display. Recent attempts have focused on the modification of std. printing techniques, such as screen printing and ink-jetting, but those still have tech. drawbacks. The authors report a class of electroluminescent polymers that can be patterned in a way similar to std. photoresist materials-sol. polymers with oxetane side groups that can be crosslinked photochem. to produce insol. polymer networks in desired areas. The resoln. of the process is sufficient to fabricate pixelated matrix displays. Consecutive deposition of polymers that are luminescent in each of the three RGB colors yielded a device with efficiencies comparable to state-of-the-art OLEDs and even slightly reduced onset voltages.

IT 463944-39-0P 521985-56-8P 521985-57-9P
521985-58-0P

(photoimaging electroluminescent oxethane-functionalized spirobifluorene-fluorene polymers and fabrication of pixelated matrix displays using this compds.)

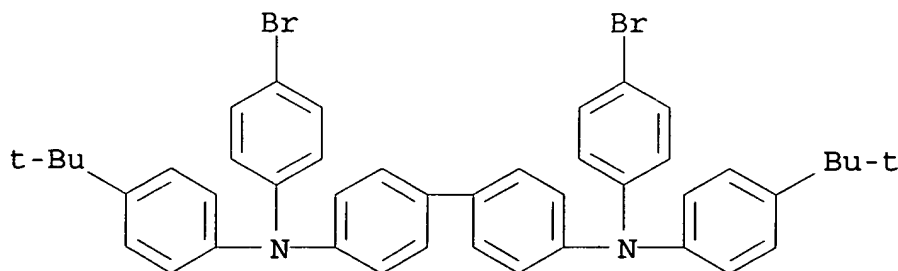
RN 463944-39-0 HCA

CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(4-bromophenyl)-N,N'-bis[4-(1,1-dimethylethyl)phenyl]-, polymer with 9-[3,4-bis(2-methylbutoxy)phenyl]-2,7-dibromo-9-(2,5-dimethylphenyl)-9H-fluorene and 2,2'-[2',3',6',7'-tetrakis(2-methylbutoxy)-9,9'-spirobi[9H-fluorene]-2,7-diyl]bis[1,3,2-dioxaborolane] (9CI) (CA INDEX NAME)

CM 1

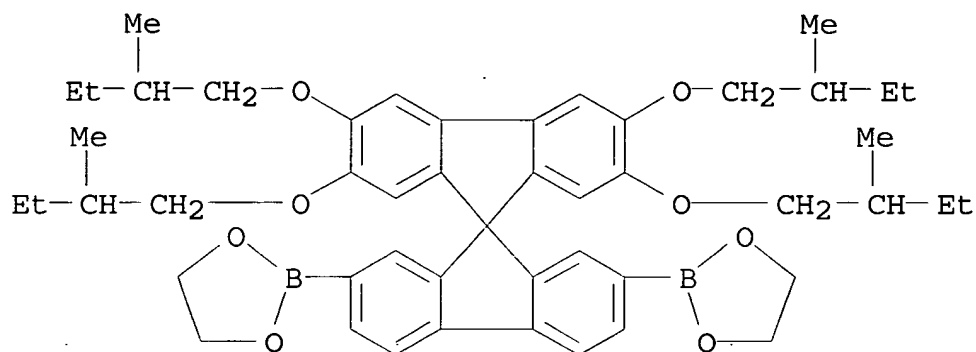
CRN 463944-36-7

CMF C44 H42 Br2 N2



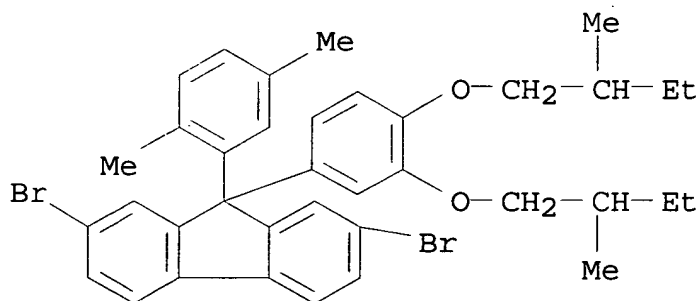
CM 2

CRN 396123-43-6
CMF C49 H62 B2 O8



CM 3

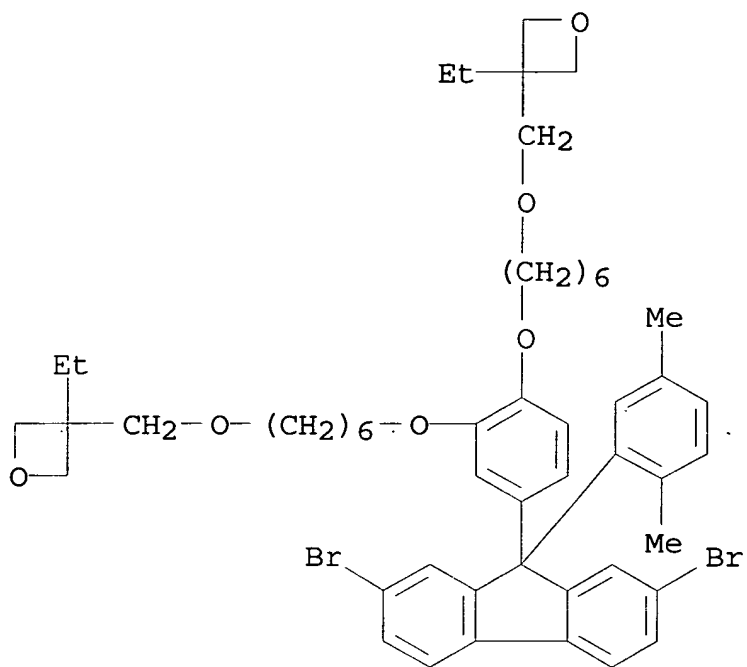
CRN 396123-39-0
CMF C37 H40 Br2 O2



RN 521985-56-8 HCA
CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(4-bromophenyl)-N,N'-bis[4-(1,1-dimethylethyl)phenyl]-, polymer with 9-[3,4-bis(2-methylbutoxy)phenyl]-2,7-dibromo-9-(2,5-dimethylphenyl)-9H-fluorene, 3,3'-[[4-[2,7-dibromo-9-(2,5-dimethylphenyl)-9H-fluoren-9-yl]-1,2-phenylene]bis(oxy-6,1-hexanediylloxymethylene)]bis[3-ethyloxetane] and 2,2'-[2',3',6',7'-tetrakis(2-methylbutoxy)-9,9'-spirobi[9H-fluorene]-2,7-diyl]bis[1,3,2-dioxaborolane] (9CI) (CA INDEX NAME)

CM 1

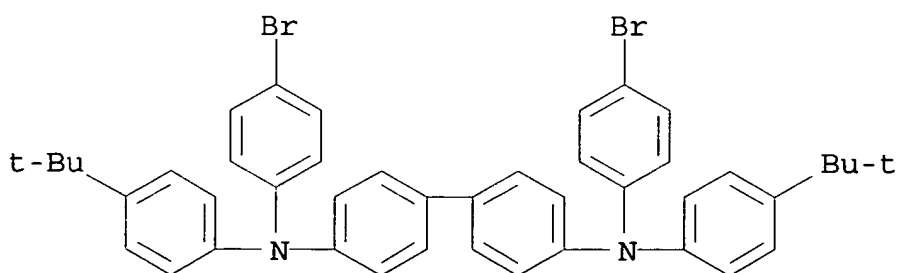
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CMF C51 H64 Br2 O6



CM 2

CRN 463944-36-7

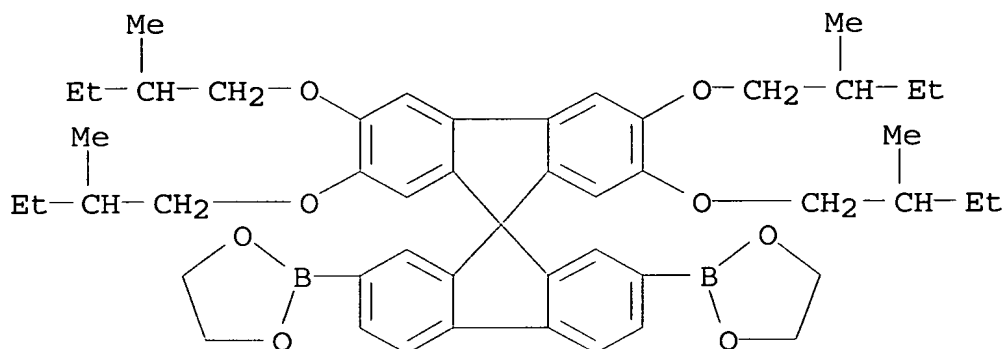
CMF C44 H42 Br2 N2



CM 3

CRN 396123-43-6

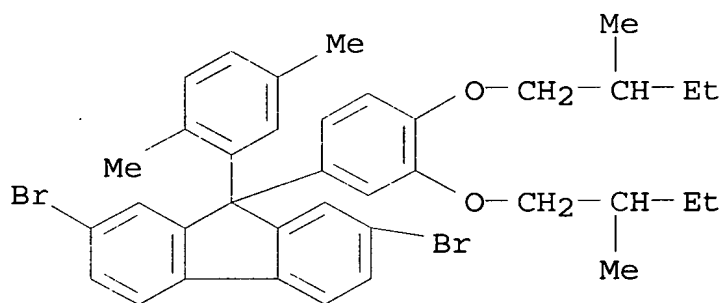
CMF C49 H62 B2 O8



CM 4

CRN 396123-39-0

CMF C37 H40 Br2 O2



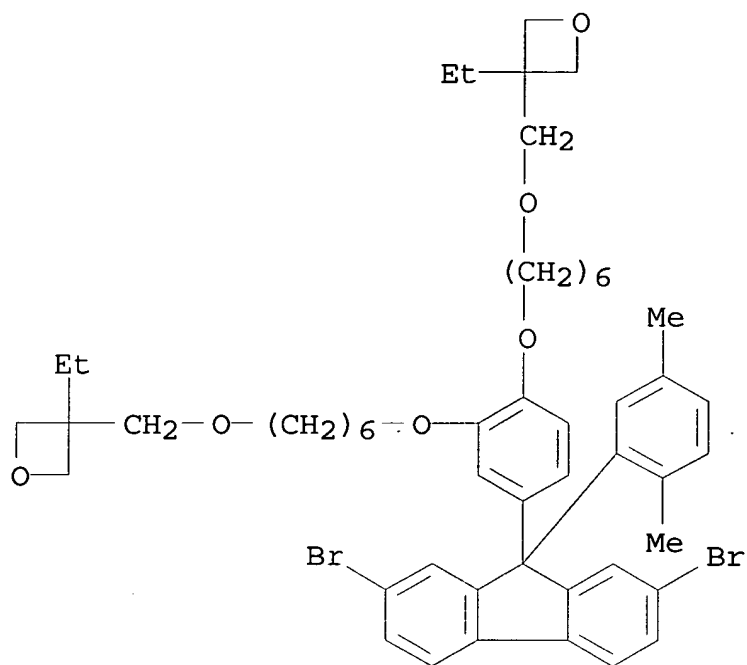
RN 521985-57-9 HCA

CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(4-bromophenyl)-N,N'-bis[4-(1,1-dimethylethyl)phenyl]-, polymer with 1,4-bis[2-(4-bromo-2,5-dimethoxyphenyl)ethenyl]-2-[(2-ethylhexyl)oxy]-5-methoxybenzene, 3,3'-[[4-[2,7-dibromo-9-(2,5-dimethylphenyl)-9H-fluoren-9-yl]-1,2-phenylene]bis(oxy-6,1-hexanediylloxymethylene)]bis[3-ethyloxetane] and 2,2'-[2',3',6',7'-tetrakis(2-methylbutoxy)-9,9'-spirobi[9H-fluorene]-2,7-diyl]bis[1,3,2-dioxaborolane] (9CI) (CA INDEX NAME)

CM 1

CRN 521985-55-7

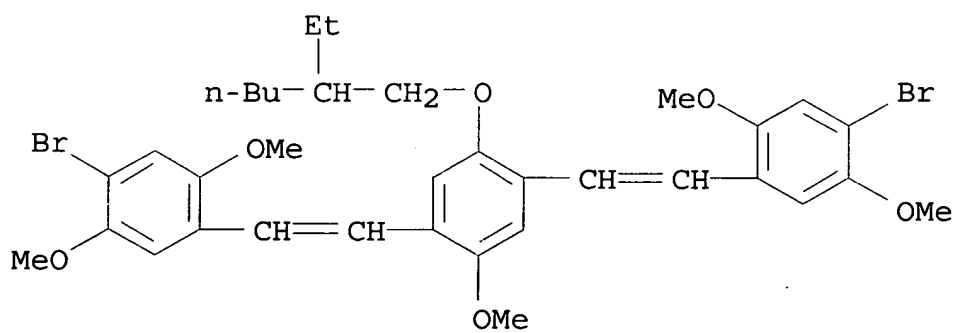
CMF C51 H64 Br2 O6



CM 2

CRN 501434-75-9

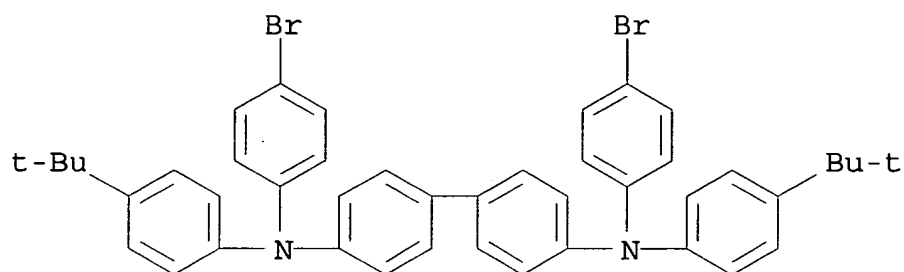
CMF C35 H42 Br2 O6



CM 3

CRN 463944-36-7

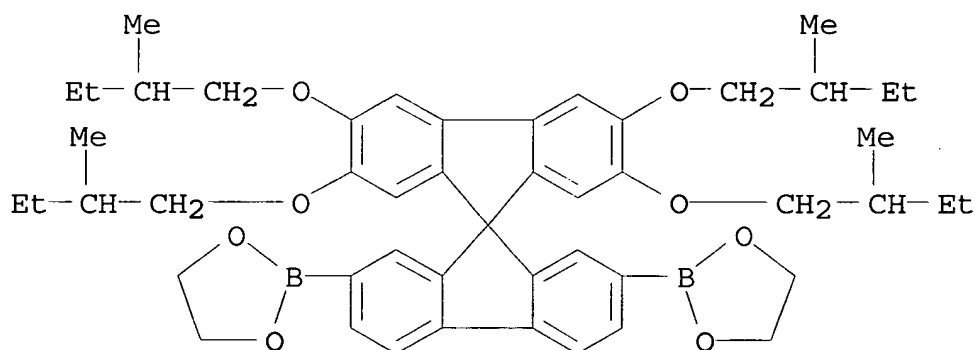
CMF C44 H42 Br2 N2



CM 4

CRN 396123-43-6

CMF C49 H62 B2 O8



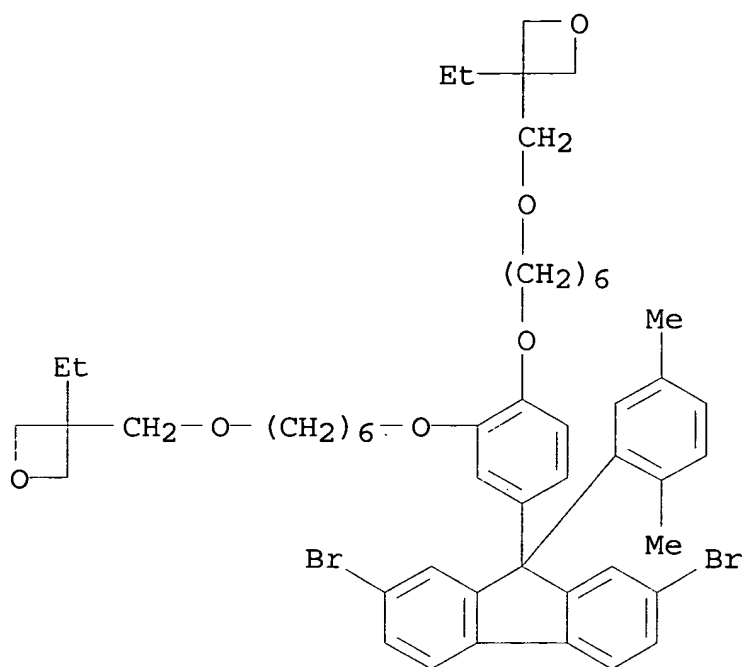
RN 521985-58-0 HCA

CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(4-bromophenyl)-N,N'-bis[4-(1,1-dimethylethyl)phenyl]-, polymer with 4,7-bis(5-bromo-2-thienyl)-2,1,3-benzothiadiazole, 4,7-dibromo-2,1,3-benzothiadiazole, 3,3'-[[4-[2,7-dibromo-9-(2,5-dimethylphenyl)-9H-fluoren-9-yl]-1,2-phenylene]bis(oxy-6,1-hexanediylloxymethylene)]bis[3-ethyloxetane] and 2,2'-[2',3',6',7'-tetrakis(2-methylbutoxy)-9,9'-spirobi[9H-fluorene]-2,7-diyl]bis[1,3,2-dioxaborolane] (9CI) (CA INDEX NAME)

CM 1

CRN 521985-55-7

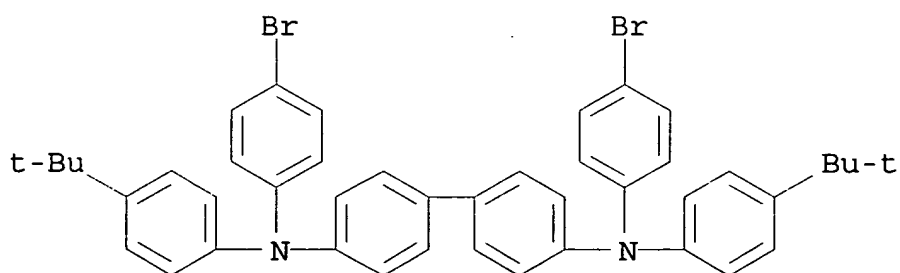
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CM 2

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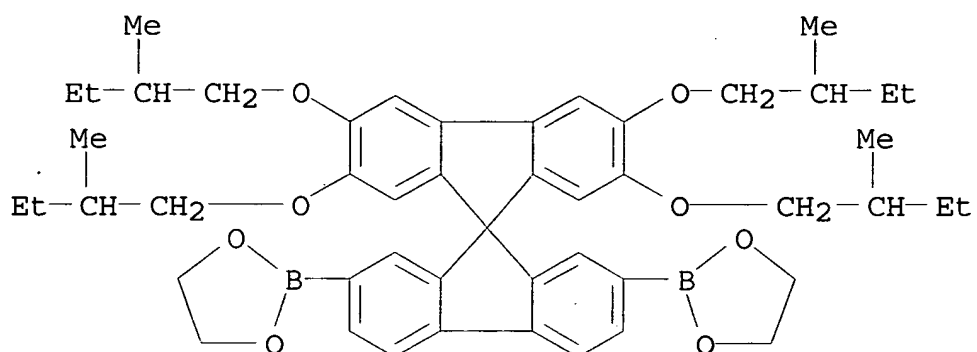
CMF C44 H42 Br2 N2



CM 3

CRN 396123-43-6

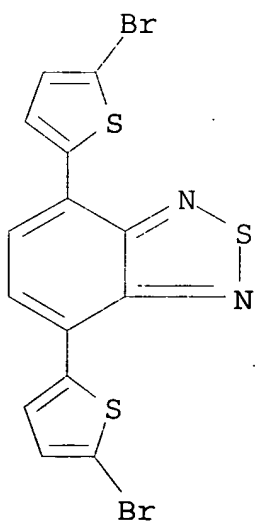
CMF C49 H62 B2 O8



CM 4

CRN 288071-87-4

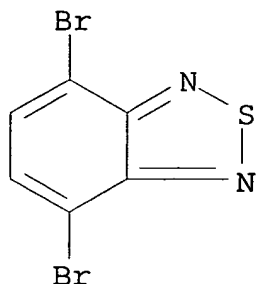
CMF C14 H6 Br2 N2 S3



CM 5

CRN 15155-41-6

CMF C6 H2 Br2 N2 S



IT 463944-39-0P 521985-56-8P 521985-57-9P
521985-58-0P

(photoimaging electroluminescent oxethane-functionalized spirobifluorene-fluorene polymers and fabrication of pixelated matrix displays using this compds.)

L46 ANSWER 13 OF 28 HCA COPYRIGHT 2005 ACS on STN

137:263469 Conjugated polymers containing spirobifluorene units and fluorene units, and the use thereof. Treacher, Kevin; Becker, Heinrich; Stoessel, Philipp; Spreitzer, Hubert; Falcou, Aurelie; Parham, Amir; Buesing, Arne (Covion Organic Semiconductors GmbH, Germany). PCT Int. Appl. WO 2002077060 A1 20021003, 61 pp. DESIGNATED STATES: W: AG, CN, DZ, JP, KR, US; RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR. (German). CODEN: PIXXD2. APPLICATION: WO 2002-EP3221 20020322. PRIORITY: DE 2001-10114477 20010324.

AB The invention relates to polymers contg. spirobifluorene units optionally contg. N in .gtoreq.1 of the arom. rings and optionally 2 of the arom. rings bridged by C- or heteroatom-contg. links and fluorene units optionally contg. N in .gtoreq.1 of the arom. rings., which can contain addnl. other structural elements that can have charge transfer properties, hole transfer properties and/or electron transfer properties. Materials of this type exhibit a distinctly improved property profile in electronic components, particularly when used in a PLED, esp. as electroluminescence material, in org. integrated circuits (O-IC's), org. field effect transistors (OFET's), org. thin-film transistors (OTFT's), org. solar cells (O-SC's) or in org. laser diodes (O-lasers). A typical polymer was manufd. by heating 1.53 g Ni(COD)₂ and 0.87 2,2'-bipyridyl 30 min at 80.degree., adding 0.379 g 1,5-cyclooctadiene, adding 20 mL PhMe contg. 2,7-dibromo-2',3',6',7'-tetra(2-methylbutoxy)spirobifluorene 0.990, 2,7-dibromo-9-(2,5-dimethylphenyl)-9-[3,4-bis(2-methylbutoxy)phenyl]fluorene 0.652, and N,N'-bis(4-bromophenyl)-N,N'-bis(4-tert-butylphenyl)benzidine 0.183 g, and heating 144 h at 80.degree..

IT 463944-39-0P

(conjugated polymers contg. spirobifluorene units and fluorene

units)

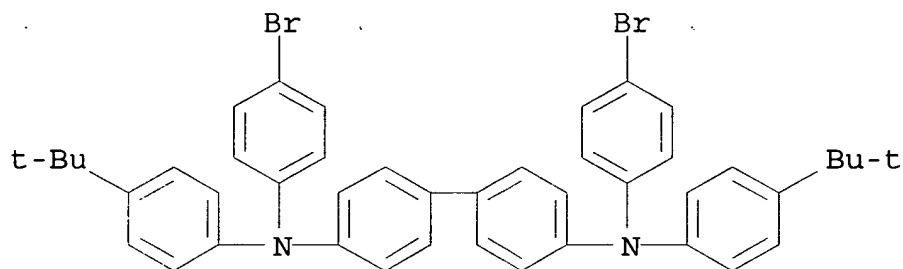
RN 463944-39-0 HCA

CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(4-bromophenyl)-N,N'-bis[4-(1,1-dimethylethyl)phenyl]-, polymer with 9-[3,4-bis(2-methylbutoxy)phenyl]-2,7-dibromo-9-(2,5-dimethylphenyl)-9H-fluorene and 2,2'-[2',3',6',7'-tetrakis(2-methylbutoxy)-9,9'-spirobi[9H-fluorene]-2,7-diyl]bis[1,3,2-dioxaborolane] (9CI) (CA INDEX NAME)

CM 1

CRN 463944-36-7

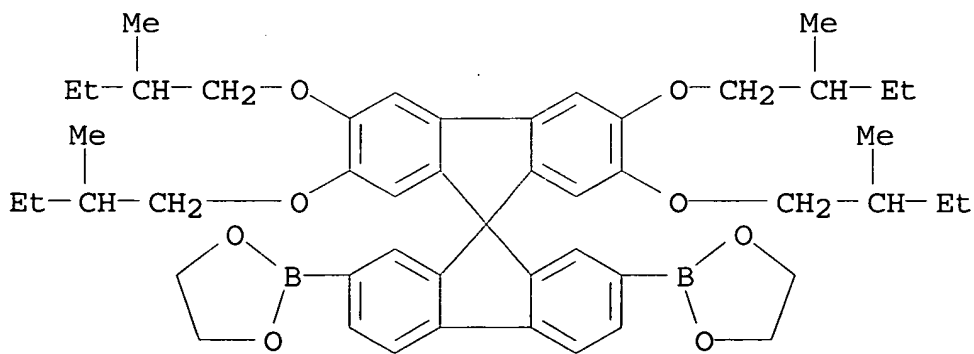
CMF C44 H42 Br2 N2



CM 2

CRN 396123-43-6

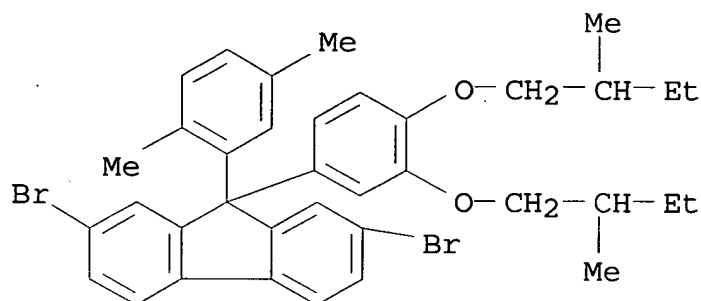
CMF C49 H62 B2 O8



CM 3

CRN 396123-39-0

CMF C37 H40 Br2 O2



IT 463944-39-0P

(conjugated polymers contg. spirobifluorene units and fluorene units)

L46 ANSWER 14 OF 28 HCA COPYRIGHT 2005 ACS on STN

137:234181 Solutions and dispersions of organic semiconductors especially useful in printing. Spreitzer, Hubert; Becker, Heinrich; Treacher, Kevin; Heun, Susanne; Sauer, Andreas (Covion Organic Semiconductors G.m.b.H., Germany). PCT Int. Appl. WO 2002072714 A1 20020919, 38 pp. DESIGNATED STATES: W: CN, JP, KR, US; RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR. (German). CODEN: PIXXD2. APPLICATION: WO 2002-EP2491 20020307. PRIORITY: DE 2001-10111633 20010310.

AB The title solns. or dispersions are prep'd. in mixts. of .gtoreq.2 different org. solvents having b.p. <200.degree. (.gtoreq.1 with b.p. 140-220.degree.) and f.p. .ltoreq.15.degree., contg. no benzylic CH or CH2 groups and no C6H6 derivs. bearing tert-Bu groups or >2 Me groups. A soln. of poly[[3,4-bis(2-methylpropoxy)phenyl]-p-phenylenevinylene]co[2-[3,4-bis(2-methylbutoxy)phenyl]-5-methoxy-p-phenylenevinylene]co[2-(2,5-dimethylphenyl)-5-methoxy-p-phenylenevinylene] (no.-av. mol. wt. .apprx.1,000,000, wt.-av. mol. wt. .apprx.310,000) in 10:60:30 2,5-dimethylanisole-4-methylanisol-o-xylene showed much faster thickening than did a soln. in anisole alone.

IT 264281-11-0

(solns. and dispersions of org. semiconductors esp. useful in printing)

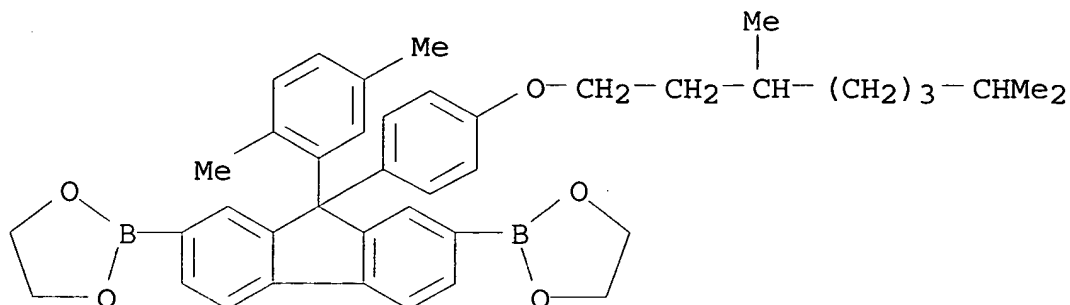
RN 264281-11-0 HCA

CN 1,3,2-Dioxaborolane, 2,2'-[9-[4-[(3,7-dimethyloctyl)oxy]phenyl]-9-(2,5-dimethylphenyl)-9H-fluorene-2,7-diyl]bis-, polymer with 2,7-dibromo-9-[4-[(3,7-dimethyloctyl)oxy]phenyl]-9-(2,5-dimethylphenyl)-9H-fluorene (9CI) (CA INDEX NAME)

CM 1

CRN 264280-96-8

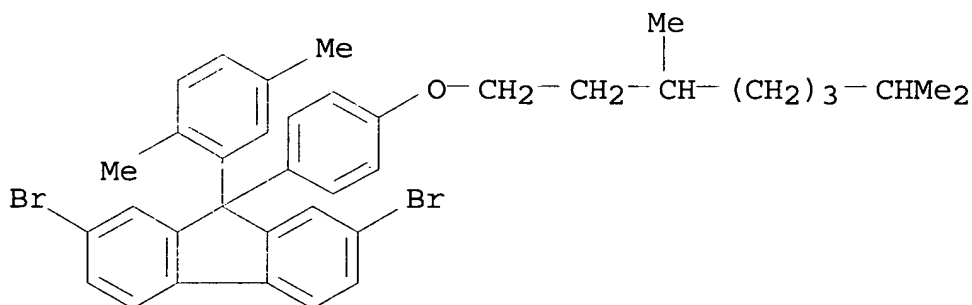
CMF C41 H48 B2 O5



CM 2

CRN 264280-93-5

CMF C37 H40 Br2 O



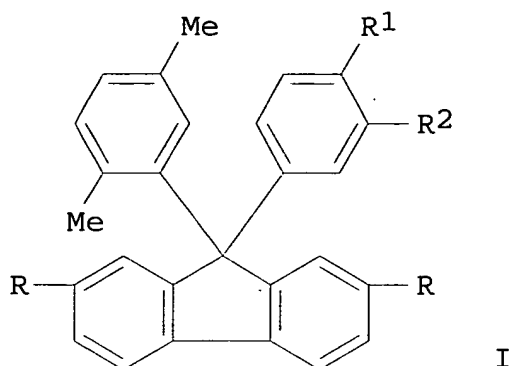
IT 264281-11-0

(solns. and dispersions of org. semiconductors esp. useful in printing)

L46 ANSWER 15 OF 28 HCA COPYRIGHT 2005 ACS on STN

136:167820 Polymer materials that can be structured, method for producing the same and their use for LED's. Meerholz, Klaus; Bayerl, Michael; Bielefeldt, Florian; Braig, Thomas; Gross, Markus; Mueller, David; Nuyken, Oskar; Spreitzer, Hubert (Covion Organic Semiconductors G.m.b.H., Germany). PCT Int. Appl. WO 2002010129 A2 20020207, 40 pp. DESIGNATED STATES: W: CN, JP, KR, US; RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR. (German). CODEN: PIXXD2. APPLICATION: WO 2001-EP9176 20010801. PRIORITY: DE 2000-10037391 20000801.

GI



AB Polymers, useful in manuf. of structurable materials for LED's, have side chains with oxetane groups that provide sites for self-crosslinking. A typical polymer was manufd. by heating fluorene deriv. I (R = Br, R1, R2 = OCH₂CHMeEt) 1.6237, I (R = 4,4,5,5-tetramethyl-1,3,2-dioxaborolan-2-yl, R1 = CH₂CH₂CHMe(CH₂)₃Me₂, R2 = H) (II) 4.5281, p-BrC₆H₄NPh-p-C₆H₄C₆H₄-p-NPhC₆H₄-p 0.7757, and I (R = Br, R2 = H, R1 = 3-ethyloxetan-3-ylmethoxy) 1.4842 g 4 days at 87.degree. under N in MePh-water-EtOH mixt. in the presence of K₃PO₄.H₂O and Pd(PPh)₃, adding 0.10 g II, heating 6 h, adding 0.3 mL PhBr, and refluxing 3 h.

IT 396123-40-3P 396123-44-7P 396123-45-8P
396123-46-9P 396123-47-0P 396123-48-1P
396123-49-2P

(structurable polyphenylenes having fluorene and oxetane groups for LED's)

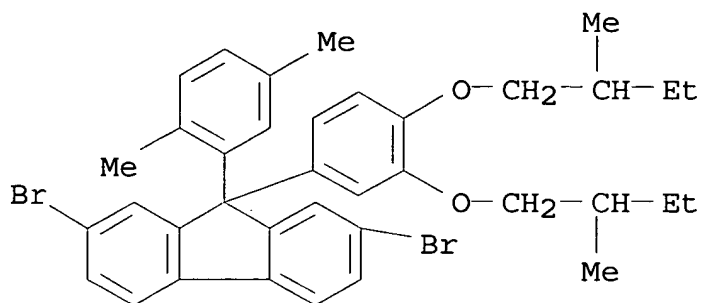
RN 396123-40-3 HCA

CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(4-bromophenyl)-N,N'-diphenyl-, polymer with 9-[3,4-bis(2-methylbutoxy)phenyl]-2,7-dibromo-9-(2,5-dimethylphenyl)-9H-fluorene, 3-[[4-[2,7-dibromo-9-(2,5-dimethylphenyl)-9H-fluoren-9-yl]phenoxy]methyl]-3-ethyloxetane and 2,2'-[9-[4-[(3,7-dimethyloctyl)oxy]phenyl]-9-(2,5-dimethylphenyl)-9H-fluorene-2,7-diyl]bis[4,4,5,5-tetramethyl-1,3,2-dioxaborolane] (9CI)
(CA INDEX NAME)

CM 1

CRN 396123-39-0

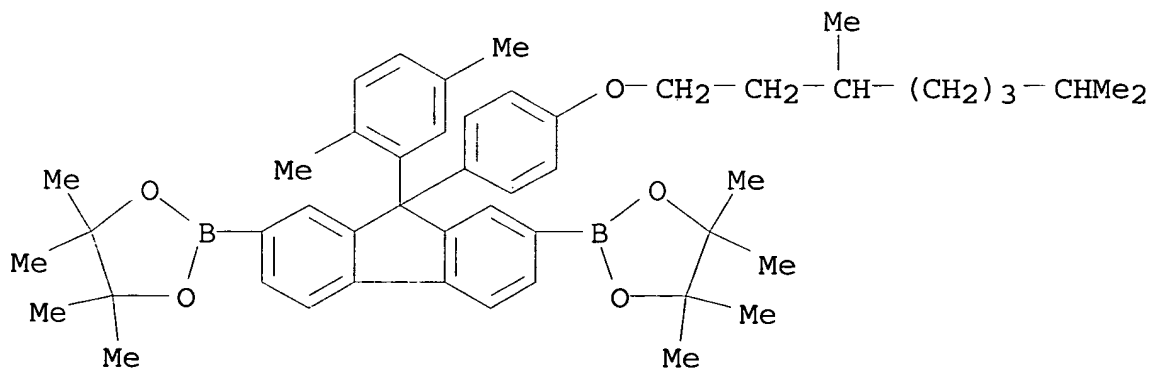
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CM 2

CRN 396123-38-9

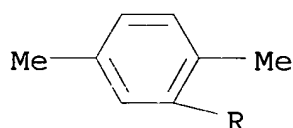
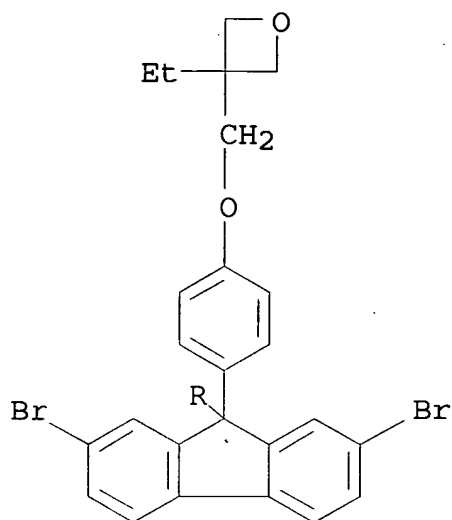
CMF C49 H64 B2 O5



CM 3

CRN 396123-34-5

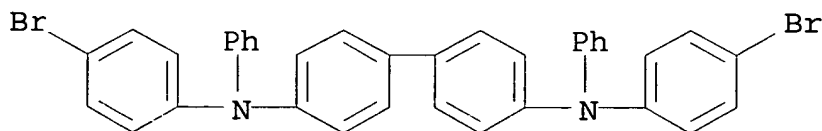
CMF C33 H30 Br2 O2



CM 4

CRN 344782-48-5

CMF C36 H26 Br2 N2



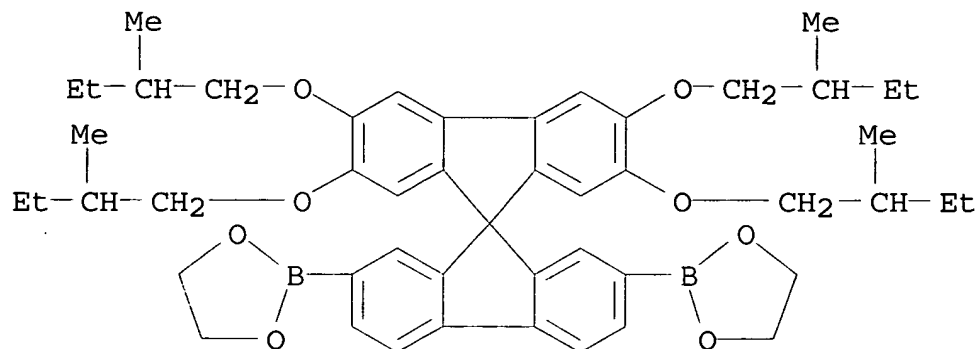
RN 396123-44-7 HCA

CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(4-bromophenyl)-N,N'-diphenyl-, polymer with 9-[3,4-bis(2-methylbutoxy)phenyl]-2,7-dibromo-9-(2,5-dimethylphenyl)-9H-fluorene, 3-[[[6-[5-[2,7-dibromo-9-(2,5-dimethylphenyl)-9H-fluoren-9-yl]-2-[[6-[(3-methyl-3-oxetanyl)methoxy]hexyl]oxy]phenoxy]hexyl]oxy]methyl]-3-methyloxetane and 2,2'-[2',3',6',7'-tetrakis(2-methylbutoxy)[9,9'-bi-9H-fluorene]-2,7-diyl]bis[1,3,2-dioxaborolane] (9CI) (CA INDEX NAME)

CM 1

CRN 396123-43-6

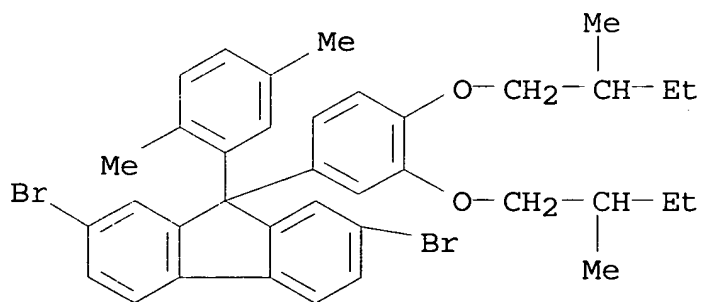
CMF C49 H62 B2 08



CM 2

CRN 396123-39-0

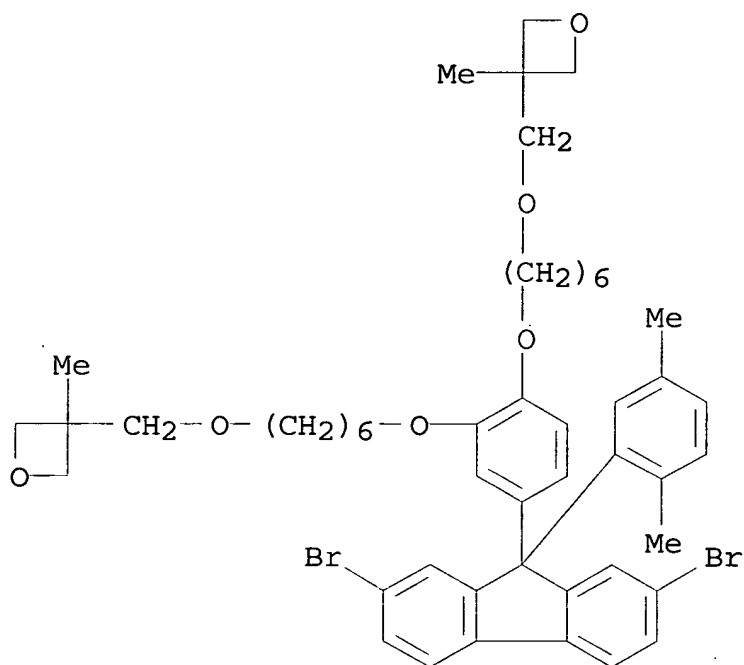
CMF C37 H40 Br2 O2



CM 3

CRN 396123-37-8

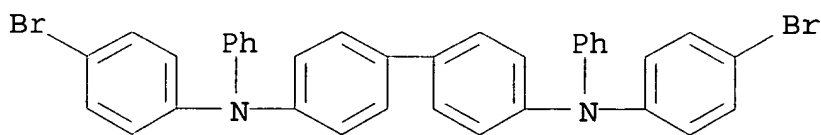
CMF C49 H60 Br2 O6



CM 4

CRN 344782-48-5

CMF C36 H26 Br2 N2



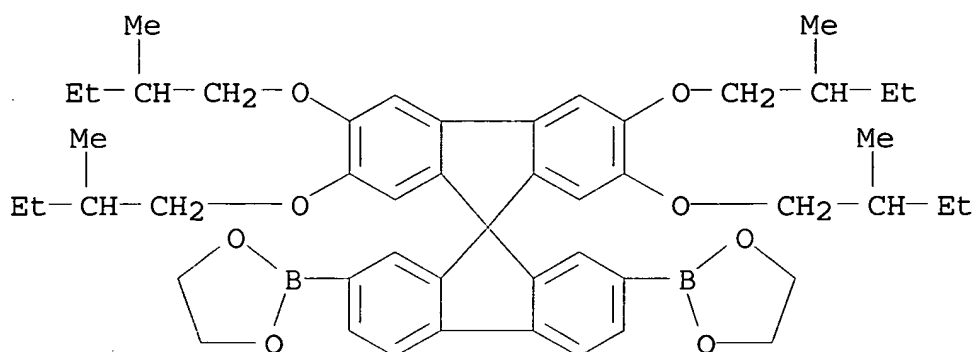
RN 396123-45-8 HCA

CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(4-bromophenyl)-N,N'-diphenyl-, polymer with 9-[3,4-bis(2-methylbutoxy)phenyl]-2,7-dibromo-9-(2,5-dimethylphenyl)-9H-fluorene, 3-[[[6-[[2,7-dibromo-9-(2,5-dimethylphenyl)-9H-fluorene-9-yl]oxy]hexyl]oxy]methyl]-3-methyloxetane and 2,2'-[2',3',6',7'-tetrakis(2-methylbutoxy)[9,9'-bi-9H-fluorene]-2,7-diyl]bis[1,3,2-dioxaborolane] (9CI) (CA INDEX NAME)

CM 1

CRN 396123-43-6

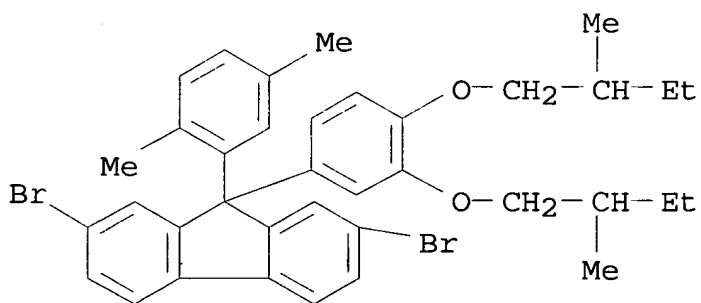
CMF C49 H62 B2 O8



CM 2

CRN 396123-39-0

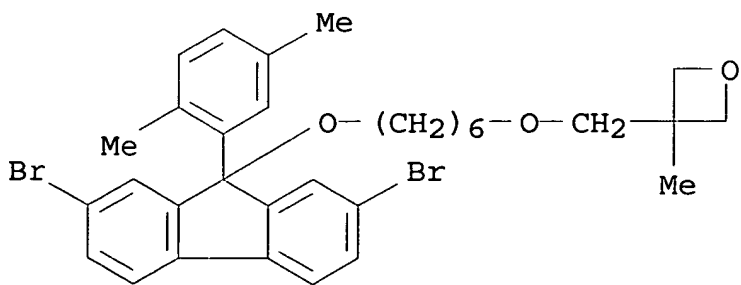
CMF C37 H40 Br2 O2



CM 3

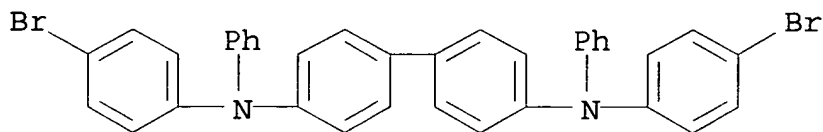
CRN 396123-35-6

CMF C32 H36 Br2 O3



CM 4

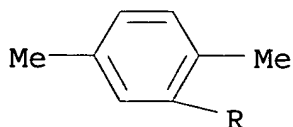
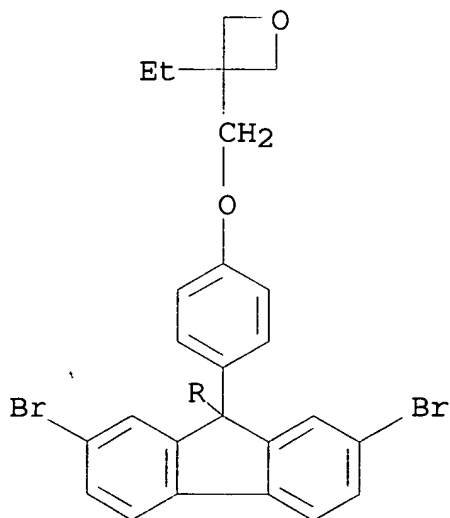
CRN 344782-48-5
CMF C36 H26 Br2 N2



RN 396123-46-9 HCA
CN 1,3,2-Dioxaborolane, 2,2'-[9,9-bis(2-ethylhexyl)-9H-fluorene-2,7-diyl]bis-, polymer with 3-[[4-[2,7-dibromo-9-(2,5-dimethylphenyl)-9H-fluoren-9-yl]phenoxy)methyl]-3-ethyloxetane (9CI) (CA INDEX NAME)

CM 1

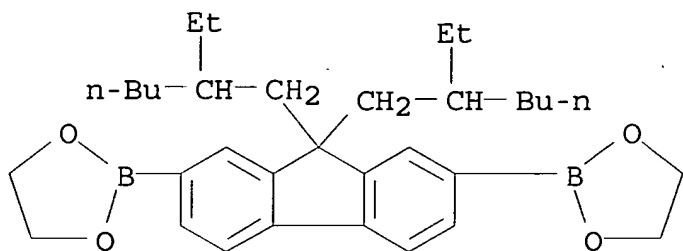
CRN 396123-34-5
CMF C33 H30 Br2 O2



CM 2

CRN 264264-02-0

CMF C33 H48 B2 O4



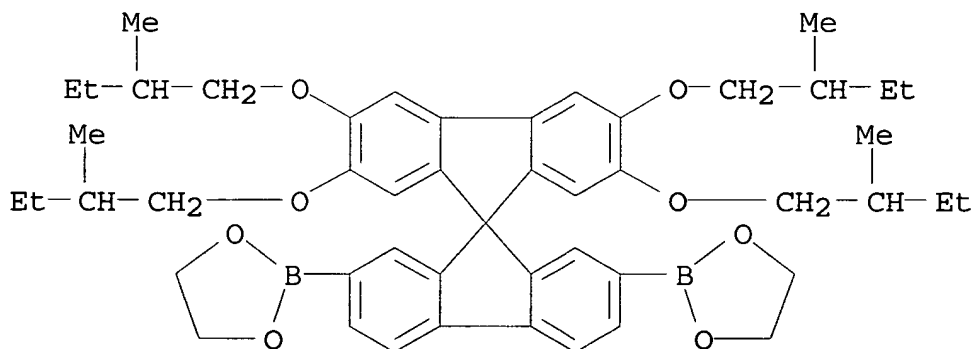
RN 396123-47-0 HCA

CN 1,3,2-Dioxaborolane, 2,2'-[2',3',6',7'-tetrakis(2-methylbutoxy) [9,9'-bi-9H-fluorene]-2,7-diyl]bis-, polymer with 9-[3,4-bis(2-methylbutoxy)phenyl]-2,7-dibromo-9-(2,5-dimethylphenyl)-9H-fluorene and 3-[[[6-[5-[2,7-dibromo-9-(2,5-dimethylphenyl)-9H-fluoren-9-yl]-2-[[6-[(3-methyl-3-oxetanyl)methoxy]hexyl]oxy]phenoxy]hexyl]oxy]methyl]-3-methyloxetane (9CI) (CA INDEX NAME)

CM 1

CRN 396123-43-6

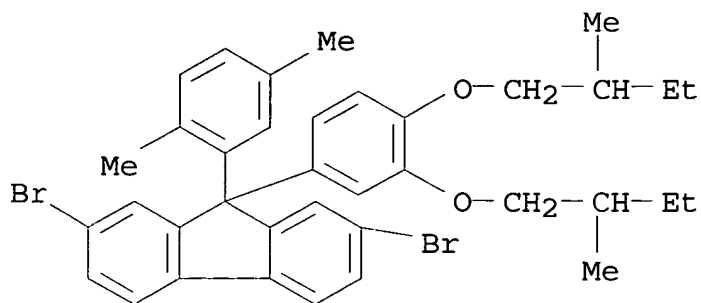
CMF C49 H62 B2 O8



CM 2

CRN 396123-39-0

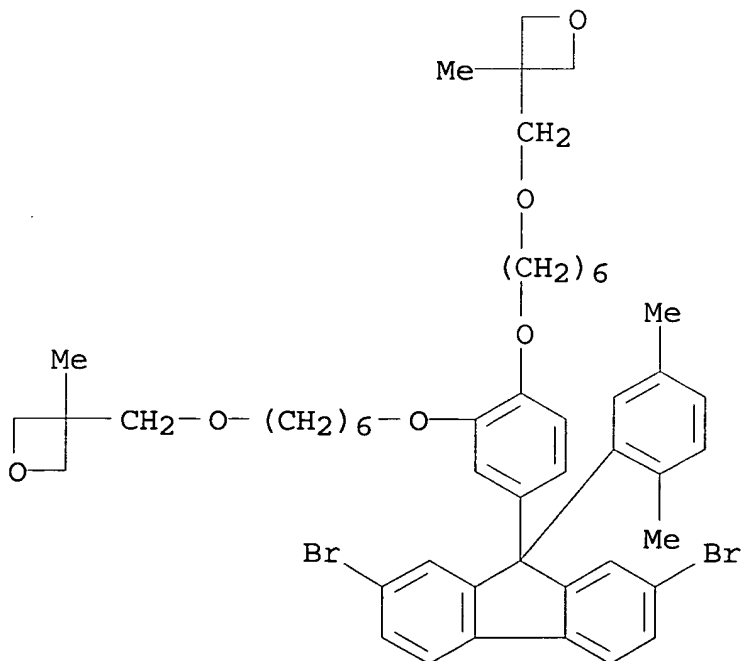
CMF C37 H40 Br2 O2



CM 3

CRN 396123-37-8

CMF C49 H60 Br2 O6



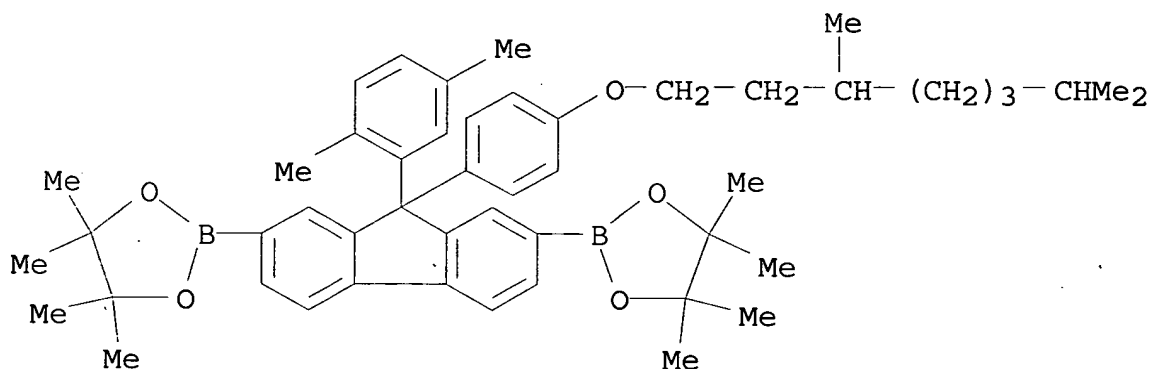
RN 396123-48-1 HCA

CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(4-bromophenyl)-N,N'-diphenyl-, polymer with 4,7-dibromo-2,1,3-benzothiadiazole, 3-[[[6-[[2,7-dibromo-9-(2,5-dimethylphenyl)-9H-fluorene-9-yl]oxy]hexyl]oxy]methyl]-3-methyloxetane and 2,2'-[9-[4-[(3,7-dimethyloctyl)oxy]phenyl]-9-(2,5-dimethylphenyl)-9H-fluorene-2,7-diyl]bis[4,4,5,5-tetramethyl-1,3,2-dioxaborolane] (9CI) (CA INDEX NAME)

CM 1

CRN 396123-38-9

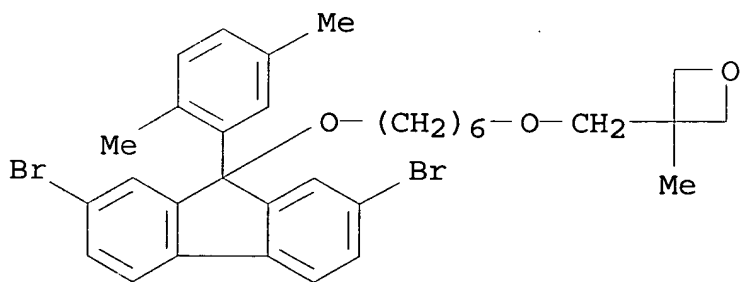
CMF C49 H64 B2 O5



CM 2

CRN 396123-35-6

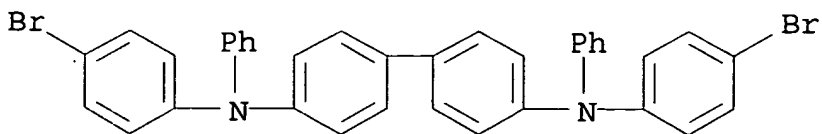
CMF C32 H36 Br2 O3



CM 3

CRN 344782-48-5

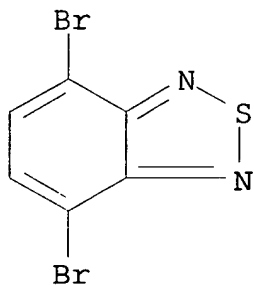
CMF C36 H26 Br2 N2



CM 4

CRN 15155-41-6

CMF C6 H2 Br2 N2 S



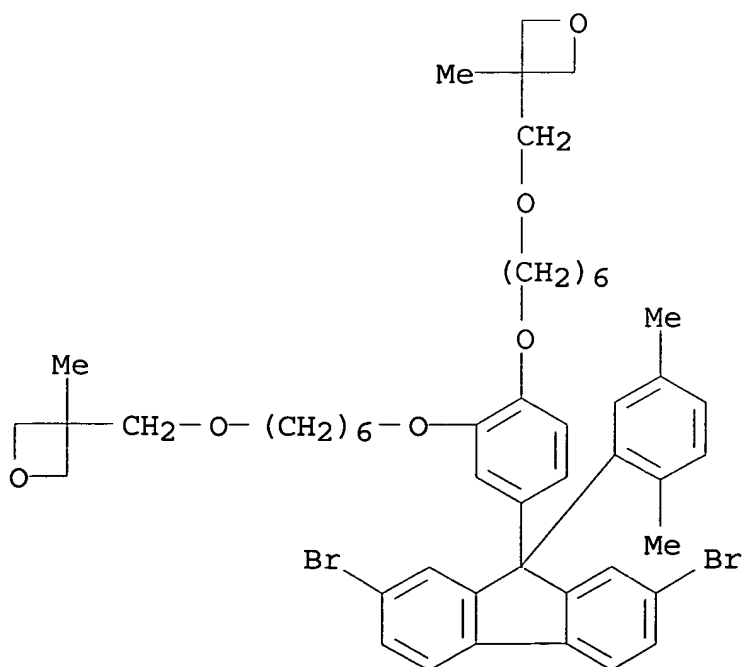
RN 396123-49-2 HCA

CN 1,3,2-Dioxaborolane, 2,2'-[9,9-bis(2-ethylhexyl)-9H-fluorene-2,7-diyl]bis-, polymer with 2,7-dibromo-9,9-bis(2-ethylhexyl)-9H-fluorene and 3-[[[6-[5-[2,7-dibromo-9-(2,5-dimethylphenyl)-9H-fluoren-9-yl]-2-[[6-[(3-methyl-3-oxetanyl)methoxy]hexyl]oxy]phenoxy]hexyl]oxy]methyl]-3-methyloxetane (9CI) (CA INDEX NAME)

CM 1

CRN 396123-37-8

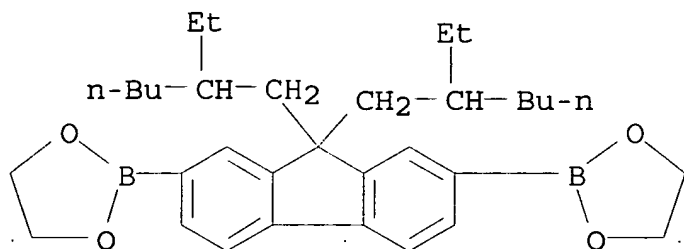
CMF C49 H60 Br2 O6



CM 2

CRN 264264-02-0

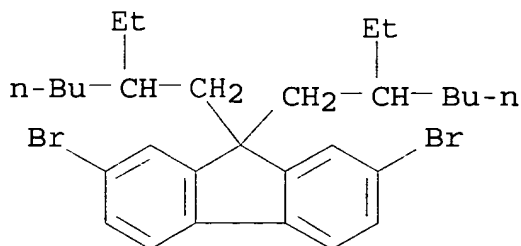
CMF C33 H48 B2 O4



CM 3

CRN 188200-93-3

CMF C29 H40 Br2



IT 396123-40-3P 396123-44-7P 396123-45-8P
 396123-46-9P 396123-47-0P 396123-48-1P
 396123-49-2P

(structurable polyphenylenes having fluorene and oxetane groups
 for LED's)

L46 ANSWER 16 OF 28 HCA COPYRIGHT 2005 ACS on STN

132:294165 Electroluminescent conjugated polymers containing fluorene
 groups. Spreitzer, Hubert; Becker, Heinrich; Kreuder, Willi (Axiva
 G.m.b.H., Germany). PCT Int. Appl. WO 2000022026 A1
 20000420, 38 pp. DESIGNATED STATES: W: AE, AL, AM, AU, AZ,
 BA, BB, BG, BR, BY, CA, CN, CU, CZ, DM, EE, GD, GE, HR, HU, ID, IL,
 IN, IS, JP, KG, KP, KR, KZ, LC, LK, LR, LT, LV, MD, MG, MK, MN, MX,
 NO, NZ, PL, RO, RU, SG, SI, SK, TJ, TM, TR, TT, UA, US, UZ, VN, YU,
 ZA, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM; RW: AT, BE, BF, BJ, CF, CG,
 CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML,
 MR, NE, NL, PT, SE, SN, TD, TG. (German). CODEN: PIXXD2.

APPLICATION: WO 1999-EP6420 19990901. PRIORITY: DE 1998-19846766 19981010.

AB Polymers useful as org. semiconductors and/or as electroluminescent materials contain fluorene groups of specified structure. Copolymn. of 14.6 mmol 9,9-bis(2-ethylhexyl)fluorene-2,7-bisboronic acid bis(ethylene glycol) ester [prepd. in 70-85% yield from 2,7-dibromo-9,9-bis(2-ethylhexyl)fluorene, Mg, and (MeO)₃B] with 20 mmol 2,7-dibromo-9-(2,4-dimethylphenyl)-9-[4-(3,7-dimethyloctyloxy)phenyl]fluorene [prepd. in 73% yield from 3,7-dimethyloctyl chloride and 2,7-dibromo-9-(2,4-dimethylphenyl)-9-(4-hydroxyphenyl)fluorene] in the presence of Pd(PPh₃)₄ gave 42% polymer with wt.-av. mol. wt. 156,000 and .lambda.max 372, 413, and 433 nm.

IT **264281-02-9P 264281-07-4P 264281-11-0P**
(electroluminescent conjugated polymers contg. fluorene groups)

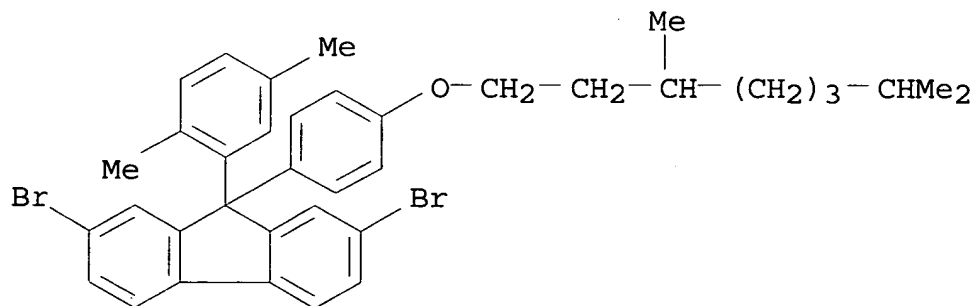
RN 264281-02-9 HCA

CN 1,3,2-Dioxaborolane, 2,2'-[9,9-bis(2-ethylhexyl)-9H-fluorene-2,7-diyl]bis-, polymer with 2,7-dibromo-9-[4-[(3,7-dimethyloctyl)oxy]phenyl]-9-(2,5-dimethylphenyl)-9H-fluorene (9CI) (CA INDEX NAME)

CM 1

CRN 264280-93-5

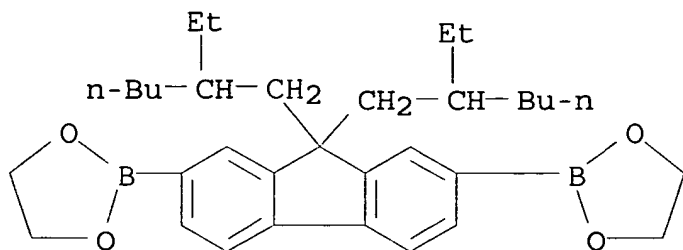
CMF C37 H40 Br2 O



CM 2

CRN 264264-02-0

CMF C33 H48 B2 O4



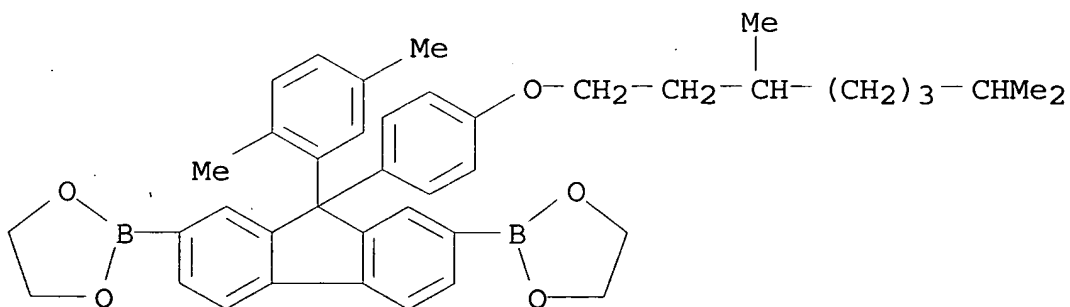
RN 264281-07-4 HCA

CN Benzenamine, 4-bromo-N-(4-bromophenyl)-N-phenyl-, polymer with 2,7-dibromo-9-[4-[(3,7-dimethyloctyl)oxy]phenyl]-9-(2,5-dimethylphenyl)-9H-fluorene and 2,2'-[9-[4-[(3,7-dimethyloctyl)oxy]phenyl]-9-(2,5-dimethylphenyl)-9H-fluorene-2,7-diyl]bis[1,3,2-dioxaborolane] (9CI) (CA INDEX NAME)

CM 1

CRN 264280-96-8

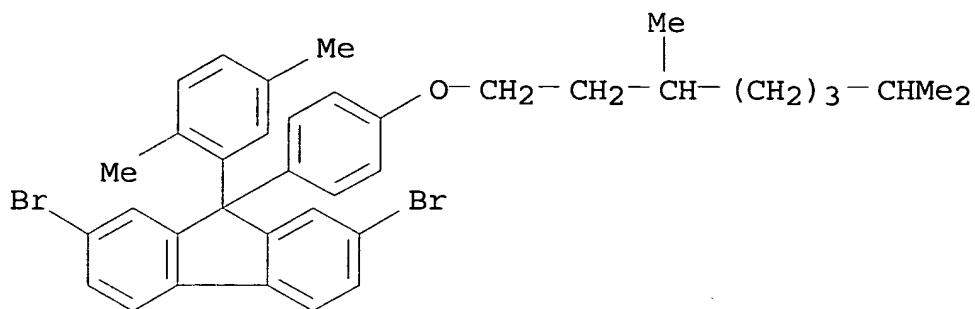
CMF C41 H48 B2 O5



CM 2

CRN 264280-93-5

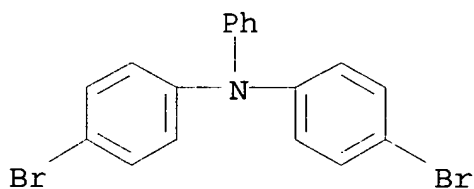
CMF C37 H40 Br2 O



CM 3

CRN 81090-53-1

CMF C18 H13 Br2 N



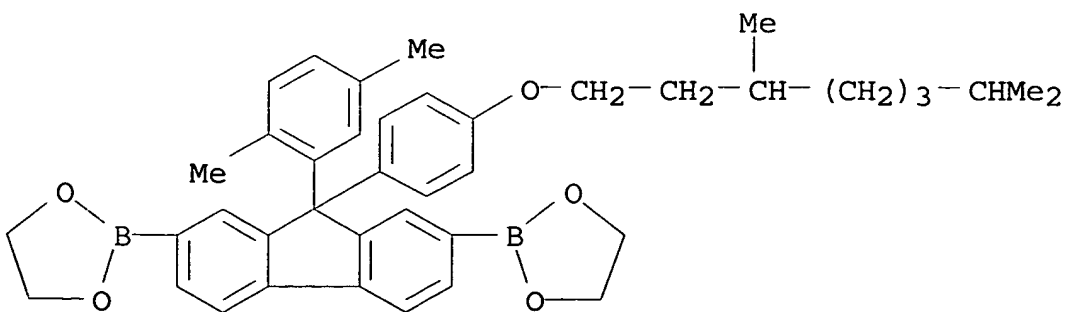
RN 264281-11-0 HCA

CN 1,3,2-Dioxaborolane, 2,2'-[9-[4-[(3,7-dimethyloctyl)oxy]phenyl]-9-(2,5-dimethylphenyl)-9H-fluorene-2,7-diyl]bis-, polymer with 2,7-dibromo-9-[4-[(3,7-dimethyloctyl)oxy]phenyl]-9-(2,5-dimethylphenyl)-9H-fluorene (9CI) (CA INDEX NAME)

CM 1

CRN 264280-96-8

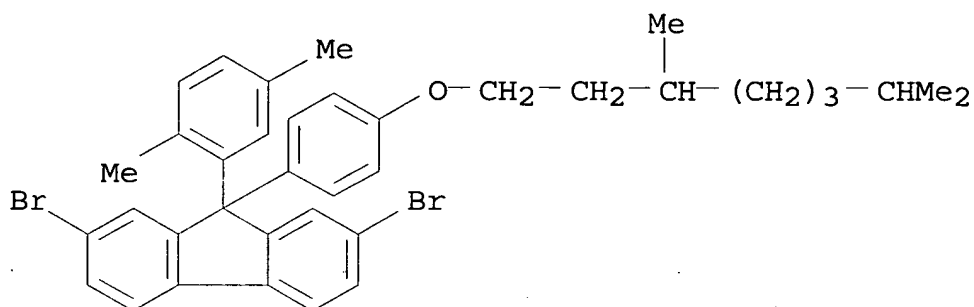
CMF C41 H48 B2 O5



CM 2

CRN 264280-93-5

CMF C37 H40 Br2 O



IT 264281-02-9P 264281-07-4P 264281-11-0P

(electroluminescent conjugated polymers contg. fluorene groups)

L46 ANSWER 17 OF 28 HCA COPYRIGHT 2005 ACS on STN

129:123010 Process for preparing conjugated polymers. Inbasekaran, Michael; Wu, Weishi; Woo, Edmund P. (Dow Chemical Co., USA). U.S. US 5777070 A 19980707, 9 pp. (English). CODEN: USXXAM. APPLICATION: US 1997-956797 19971023.

AB A process for prepg. conjugated polymers comprises contacting (i) monomers having two reactive groups selected from boronic acid, C1-6 boronic acid ester, C1-6 borane, and combinations thereof, with arom. dihalide-functional monomers or (ii) monomers having one reactive boronic acid, boronic acid ester, or borane group and one reactive halide-functional group, with each other; (wherein the monomers are selected so that the polymn. reaction product of such has conjugated unsatd. internal groups) in a reaction mixt. which contains: (a) an org. solvent in which the polymer forms at least a 1 percent soln.; (b) an aq. soln. of an inorg. base having a pKa in the range of from 9 to 13, said soln. having a concn. of at least 0.1N; (c) a catalytic amt. of a palladium complex; and (d) at least 0.01 mol percent of a phase transfer catalyst, based on the no. of moles of boronic acid, boric acid ester, and borane groups in the reaction mixt.; under reaction conditions sufficient to form the corresponding conjugated polymer. A polymer was prepd. from 2,7-dibromo-9,9-di-n-octylfluorene and 9,9-di-n-octylfluorene-2,7-di(ethyleneboronate) in a reaction mixt. contg. PhMe, aq. sodium carbonate, Aliquat 336, and tetrakis(triphenylphosphine)palladium.

IT 210347-60-7P 210347-61-8P

(process for prepg. conjugated polymers)

RN 210347-60-7 HCA

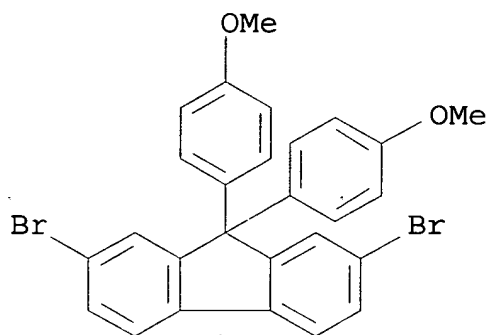
CN 1,3,2-Dioxaborolane, 2,2'-(9,9-dioctyl-9H-fluorene-2,7-diyl)bis-,

polymer with 2,7-dibromo-9,9-bis(4-methoxyphenyl)-9H-fluorene (9CI)
(CA INDEX NAME)

CM 1

CRN 210347-59-4

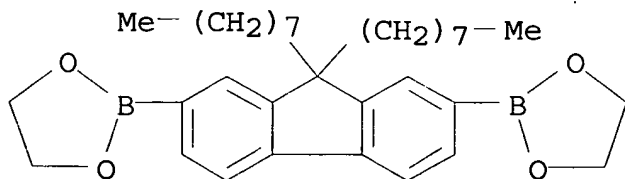
CMF C27 H20 Br2 O2



CM 2

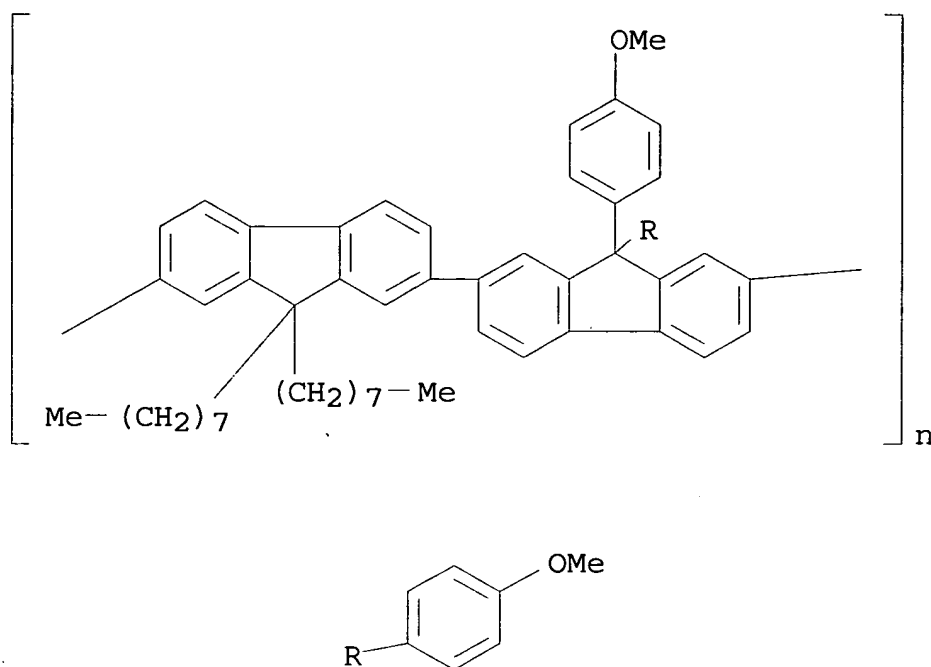
CRN 210347-49-2

CMF C33 H48 B2 O4



RN 210347-61-8 HCA

CN Poly[9,9-bis(4-methoxyphenyl)-9',9'-dioctyl[2,2'-bi-9H-fluorene]-7,7'-diyl] (9CI) (CA INDEX NAME)



IT 210347-60-7P 210347-61-8P
(process for prep. conjugated polymers)

L46 ANSWER 18 OF 28 HCA COPYRIGHT 2005 ACS on STN

119:140275 Carborane-containing reductive polymers. Sergeev, V. A.; Bekasova, N. I.; Surikova, M. A.; Baryshnikova, E. A.; Vinogradova, N. K.; Genin, Ya. V. (Inst. Elementoorg. Soedin. im. Nesmeyanova, Moscow, Russia). Vysokomolekulyarnye Soedineniya, Seriya B: Kratkie Soobshcheniya, 34(9), 70-3 (Russian) 1992. CODEN: VYSBAI. ISSN: 0507-5483.

AB Carborane-contg. polyamides showed redn. activity towards metal oxides and azomethine bond. Double bond redn. in 1,7-dicarbadoecaborane(12)-1,7-diamine -terephthalic dialdehyde copolymer, and redn. of CuO and PbO by bismaleimide-based, carborane group-contg. polyamide-polyamine-polyimide were studied by IR spectroscopy, chromatog., and x-ray phase anal.

IT 59911-70-5
(azomethine bond redn. in, during heating)

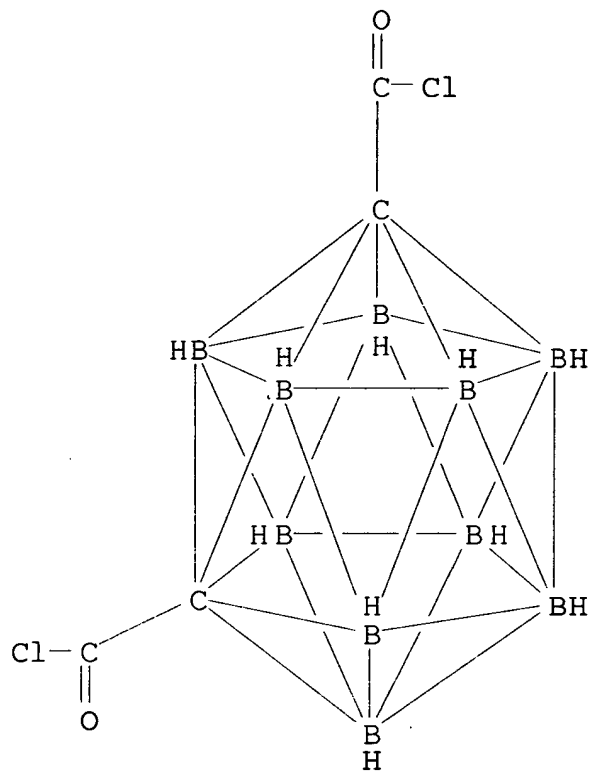
RN 59911-70-5 HCA

CN 1,7-Dicarbadoecaborane(12)-1,7-dicarbonyl dichloride, polymer with 4,4'-(9H-fluoren-9-ylidene)bis[benzenamine] (9CI) (CA INDEX NAME)

CM 1

CRN 23810-52-8

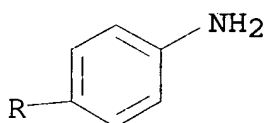
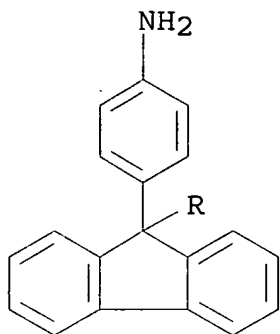
CMF C4 H10 B10 Cl2 O2



CM 2

CRN 15499-84-0

CMF C25 H20 N2



IT 59911-70-5

(azomethine bond redn. in, during heating)

L46 ANSWER 19 OF 28 HCA COPYRIGHT 2005 ACS on STN

92:148075 Mixture containing poly(phenylquinoxaline) as antifriction material. Korshak, V. V.; Gribova, I. A.; Krasnov, A. P.; Krongauz, E. S.; Berlin, A. M.; Vinogradova, O. V.; Mamatsashvili, G. V.; Pavlova, S. A.; Gribkova, P. N.; et al. (Institute of Heteroorganic Compounds, Academy of Sciences, U.S.S.R., USSR). Austrian AT 354097 19791227, 10 pp. (German). CODEN: AUXXAK. APPLICATION: AT 1975-8182 19751027.

AB Antifriction materials with low, stable friction coeffs. at .ltoreq.350.degree. contain poly(phenylquinoxaline) (I) 5-98, antifriction fillers 1-94, reinforcing fillers 0-40, and p-C6H4(CHO)2 [623-27-8], 1,2,4,5-C6H2(CN)4 [712-74-3], metal polyphosphinates, or carboranes 0.1-10 parts. Thus, a mixt. of I [(O[C6H3(NH2)2-3,4]2-p-C6H4(COCOPh)2 polymer [25656-52-4]] (d.p. 120) 40, graphite 58, and p-C6H4(CHO)2 2 parts has friction coeff. (0.2 N/mm2, 2 m/s) 0.05-0.06 and 0.056 at 150-350 and 350.degree., resp., notched impact strength 5 kJ/m2, and Brinell hardness 200 N/mm2.

IT 59911-70-5

(antifriction materials, heat-resistant)

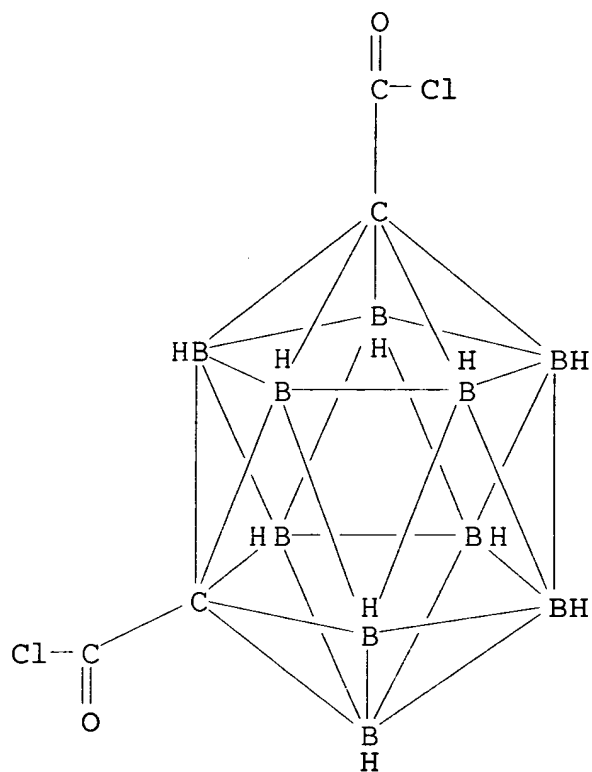
RN 59911-70-5 HCA

CN 1,7-Dicarbadoecaborane(12)-1,7-dicarbonyl dichloride, polymer with 4,4'-(9H-fluoren-9-ylidene)bis[benzenamine] (9CI) (CA INDEX NAME)

CM 1

CRN 23810-52-8

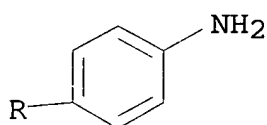
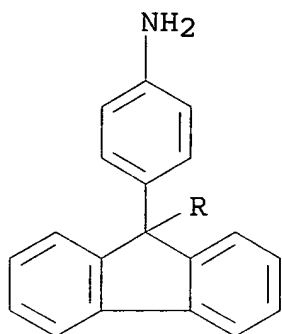
CMF C4 H10 B10 Cl2 O2



CM 2

CRN 15499-84-0

CMF C25 H20 N2



IT 59911-70-5
(antifriction materials, heat-resistant)

L46 ANSWER 20 OF 28 HCA COPYRIGHT 2005 ACS on STN
92:7040 Oxidative thermal degradation of carborane-containing polyamides. Korshak, V. V.; Pavlova, S. A.; Gribkova, P. N.; Balykova, T. N.; Avetisyan, Yu. L.; Bekasova, N. I.; Komarova, L. G.; Valetskii, P. M.; Vinogradova, S. V. (Inst. Elementoorg. Soedin., Moscow, USSR). Vysokomolekulyarnye Soedineniya, Seriya A, 18(4), 835-9 (Russian) 1976. CODEN: VYSAAF. ISSN: 0507-5475.

AB In the oxidative thermal degrdn. of 9,9-bis(4-aminophenyl)fluorene (I)-m-carboranedicarbonyl chloride polymer [59911-70-5] and I-4,4'-m-carboranylenedibenzoyl chloride polymer [51441-15-7] at 200-500.degree., the 1st stage of degrdn. is direct oxidn. of the carborane ring, leading to the formation of nonvolatile B-O compds. and to improved thermal stability in comparison to conventional aramides. A degrdn. mechanism was verified using model compds.

IT 51441-15-7 59911-70-5
(oxidative thermal degrdn. of, mechanism of)

RN 51441-15-7 HCA

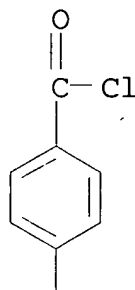
CN Benzoyl chloride, 4,4'-(1,7-dicarbadoecaborane(12)-1,7-diyl)bis-, polymer with 4,4'-(9H-fluoren-9-ylidene)bis[benzenamine] (9CI) (CA INDEX NAME)

CM 1

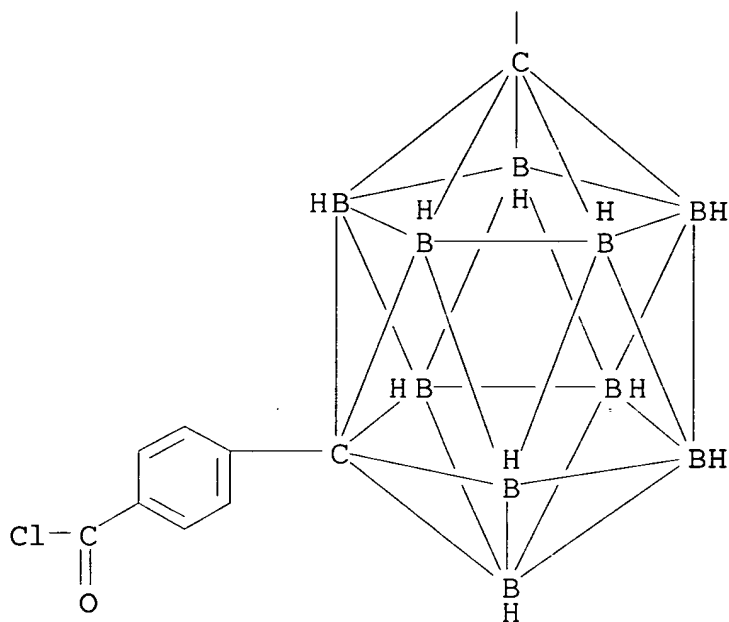
CRN 22761-53-1

CMF C16 H18 B10 Cl2 O2

PAGE 1-A



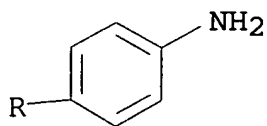
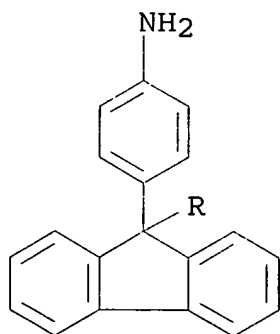
PAGE 2-A



CM 2

CRN 15499-84-0

CMF C25 H20 N2



RN 59911-70-5 HCA

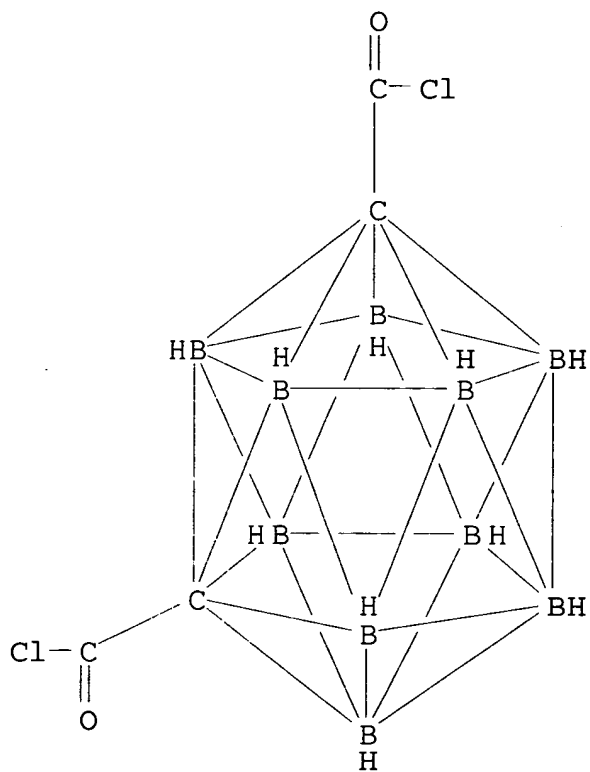
CN 1,7-Dicarbonyl dodecaborane (12) -1,7-dicarbonyl dichloride, polymer with

4,4'-(9H-fluoren-9-ylidene)bis[benzenamine] (9CI) (CA INDEX NAME)

CM 1

CRN 23810-52-8

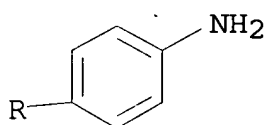
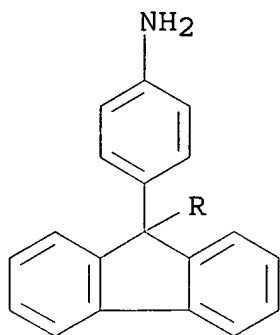
CMF C4 H10 B10 Cl2 O2



CM 2

CRN 15499-84-0

CMF C25 H20 N2



IT 51441-15-7 59911-70-5

(oxidative thermal degrdn. of, mechanism of)

L46 ANSWER 21 OF 28 HCA COPYRIGHT 2005 ACS on STN

88:171426 Composition for antifriction material. Korshak, V. V.; Gribova, I. A.; Krasnov, A. P.; Krongauz, E. S.; Berlin, A. M.; Vinogradova, O. V.; Mamatsashvili, G. V.; Pavlova, S. A.; Gribkova, P. N.; et al. (USSR). U.S. US 4076634 19780228, 7 pp. (English). CODEN: USXXAM. APPLICATION: US 1975-626205 19751028.

AB The title materials having a low and stable coeff. of friction and usable in dry-friction assemblies at .ltoreq.350.degree. comprise a poly(phenylquinoxaline) 5-98, an antifriction filler 1-94, a reinforcing filler 0-40, and a modifying dopant, e.g. terephthalaldehyde (I) [623-27-8], 0.1-10 parts. Thus, a compn. contg. 1,4-bis(phenylglyoxalyl)benzene-3,3',4,4'-tetraaminodiphenyl ether copolymer [25656-52-4] 40, I 2, and graphite 58 parts was pressed at 400.degree. and 1500 kg/cm² to give bushings which were tested for friction behavior under end face friction conditions against steel at a linear velocity of 2 m/s and a load of 2 kg/cm². At 350.degree. the coeff. of friction was 0.056, and at 150-350.degree. it was 0.05-0.06. The material had an impact strength of 5 kg-cm/cm² and a Brinell hardness of 20 kg/mm².

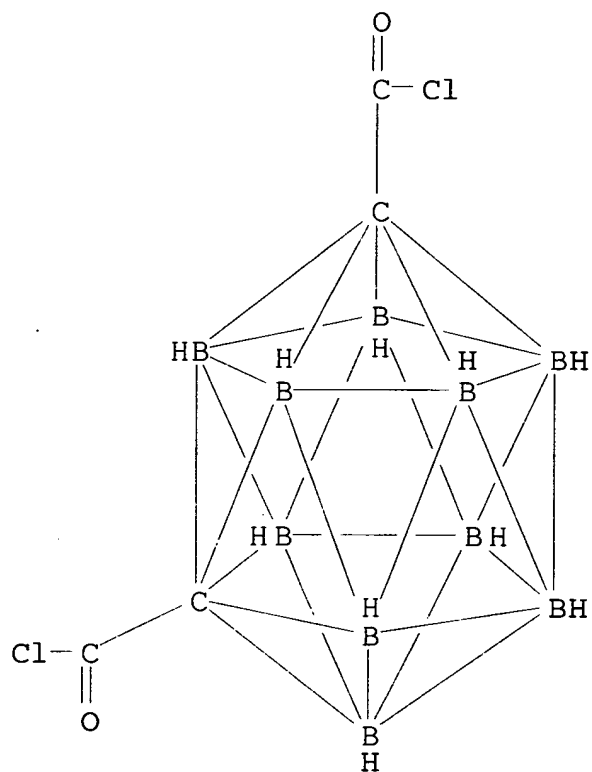
IT 59911-70-5

(antifriction materials, contg. poly(phenylquinoxalines))

RN 59911-70-5 HCA

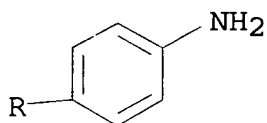
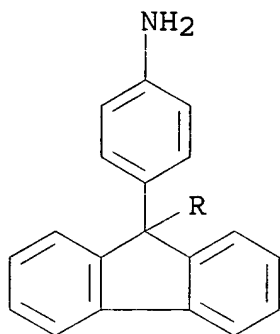
CN 1,7-Dicarbadoecaborane(12)-1,7-dicarbonyl dichloride, polymer with 4,4'-(9H-fluoren-9-ylidene)bis[benzenamine] (9CI) (CA INDEX NAME)

CRN 23810-52-8
CMF C4 H10 B10 Cl2 O2



CM 2

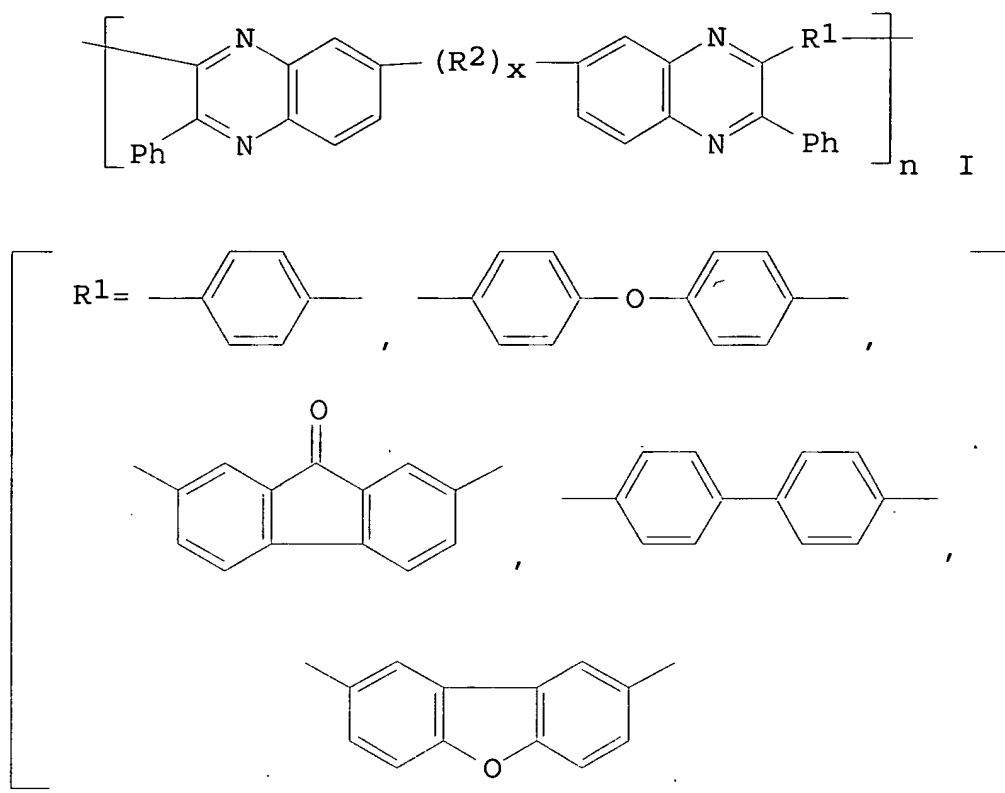
CRN 15499-84-0
CMF C25 H20 N2



IT 59911-70-5
(antifriction materials, contg. poly(phenylquinoxalines))

L46 ANSWER 22 OF 28 HCA COPYRIGHT 2005 ACS on STN
86:44418 Composition for antifriction material. Korshak, V. V.;
Gribova, I. A.; Krasnov, A. P.; Krongauz, E. S.; Berlin, A. M.
(Institute of Heteroorganic Compounds, Academy of Sciences,
U.S.S.R., USSR). Fr. Demande FR 2289551 **19760528**, 19 pp.
(French). CODEN: FRXXBL. APPLICATION: FR 1975-32880 19751028.

GI



AB Polyphenylquinoxalines (I, R₂ = O, CO, SO₂; X = 0,1) compns. contg. I 5-98, graphite (II) or MoS₂ 1-94, asbestos, powd. C and/or powd. metal reinforcement 0-40, and a modifier, i.e. terephthalaldehyde (III) [623-27-8], pyromellitic acid tetranitrile [712-74-3], a Mn or Zn polyphosphinate, or a carborane 0.1-10 parts, were suitable as antifriction materials. Typically, polyphenylquinoxaline (I, R₁ = 1,4-C₆H₄, R₂ = O, x = 1) [52885-62-8] 40, II 58, and III 2 parts, molded at 400.degree./1500 kg/cm², had friction coeff. 0.056 at 350.degree., resilience 5 kg-cm/cm², and Brinell hardness 20 kg/mm² and was used to make roller sleeves and frames.

IT 59911-70-5

(polyphenylquinoxalines modified by, as antifriction materials)

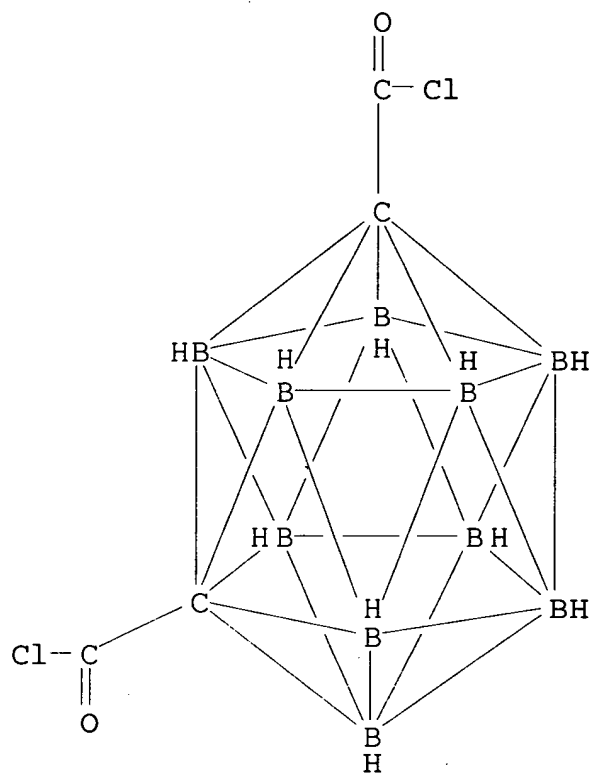
RN 59911-70-5 HCA

CN 1,7-Dicarbadoecaborane(12)-1,7-dicarbonyl dichloride, polymer with 4,4'-(9H-fluoren-9-ylidene)bis[benzenamine] (9CI) (CA INDEX NAME)

CM 1

CRN 23810-52-8

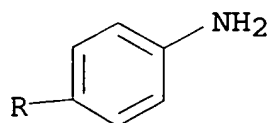
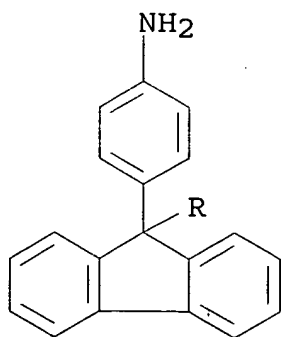
CMF C4 H10 B10 Cl2 O2



CM 2

CRN 15499-84-0

CMF C25 H20 N2



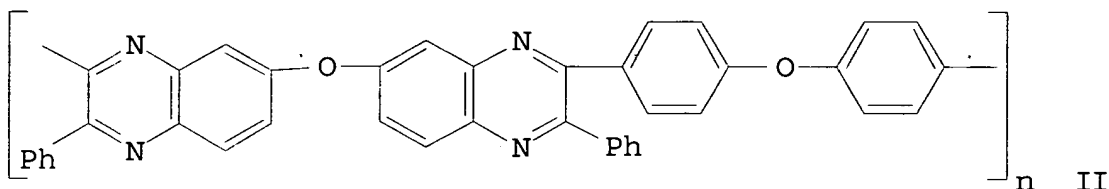
IT 59911-70-5

(polyphenylquinoxalines modified by, as antifriction materials)

L46 ANSWER 23 OF 28 HCA COPYRIGHT 2005 ACS on STN

86:30562 Antifriction material. (Institute of Heteroorganic Compounds, Academy of Sciences, U.S.S.R., USSR). Neth. Appl. NL 7512617 19760503, 18 pp. (Dutch). CODEN: NAXXAN. APPLICATION: NL 1975-12617 19751028.

GI



AB Antifriction materials with low coeff. of friction at temps. .ltoreq.350.degree. contain polyphenylquinoxaline 5-98, friction-reducing materials 1-94, reinforcing filler 0-40, and terephthalaldehyde (I) [623-27-8], pyromellitic tetranitrile [712-74-3], metal polyphosphinate, or carborane modifier 0.1-10 parts. Thus, a mixt. of 1,4-bis(phenylglyoxalyl)benzene-3,3',4,4'-tetraaminodiphenyl ether copolymer [25656-52-4] (repeating unit II) 40, I 2, and graphite [7782-42-5] 58 parts was molded at 400.degree./1500 kg/cm², giving moldings with coeff. of friction 0.056 at 350.degree. and 0.05-0.06 in the range 150-350.degree., impact strength 5 kg-cm/cm², and Brinell hardness 20 kg/mm². The compn. was useful in, e.g., self-lubricating bearing sleeves.

IT 59911-70-5

(additive, for polyphenylquinoxaline antifriction compn.)

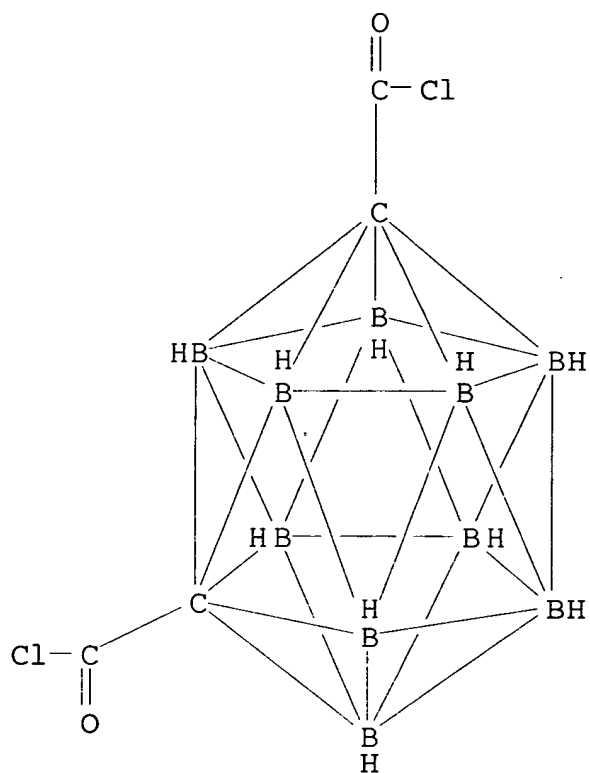
RN 59911-70-5 HCA

CN 1,7-Dicarbododecaborane(12)-1,7-dicarbonyl dichloride, polymer with 4,4'-(9H-fluoren-9-ylidene)bis[benzenamine] (9CI) (CA INDEX NAME)

CM 1

CRN 23810-52-8

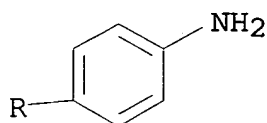
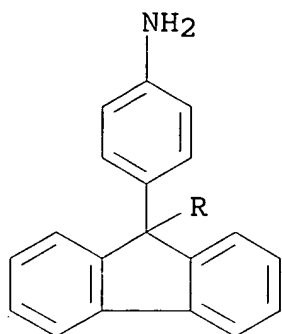
CMF C4 H10 B12 O2



CM 2

CRN 15499-84-0

CMF C25 H20 N2



IT 59911-70-5

(additive, for polyphenylquinoxaline antifriction compn.)

L46 ANSWER 24 OF 28 HCA COPYRIGHT 2005 ACS on STN

83:134840 Antifriction structural material produced from composition comprising carborane-containing polymer binders and solid lubricant. Korshak, V. V.; Gribova, I. A.; Chumaevskaia, A. N.; Mgeladze, B. M.; Bekasova, N. I.; Komarova, L. G.; Vinogradova, S. V.; Valetskii, P. M.; Kalachev, A. I.; et al. (USSR). U.S. US 3850820 19741126, 6 pp. (English). CODEN: USXXAM. APPLICATION: US 1973-410306 19731029.

GI For diagram(s), see printed CA Issue.

AB The compn. consists of a carborane-contg. polymer binder and an inorg. heat-resistant solid lubricant. The binder is a polyester, a polyamide, a polyimide, or a polyoxadiazole contg. carborane units attached to the polymer chain. For example, carborane-contg. polyacrylate (I) [31549-42-5] was prepd. from 1,2-bis[4-(chlorocarbonyl)phenyl]carborane and 9,9-bis(4-hydroxyphenyl)fluorene by polycondensation at 220.degree. in an inert atm. in .alpha.-chloronaphthalene during 15 hr. I (4 g) was mixed in a vibromill with 16 g of fine graphite [7782-42-5] for 1.5 min. The resulting compn. was molded at 300.degree. and 1000 kg/cm², followed by coking at 1000 kg/cm³ at 500.degree. and maintaining this temp. for 2 hr. The antifriction material had high mech. strength.

IT 31073-67-3

(binders, for antifriction materials)

RN 31073-67-3 HCA

CN Benzoyl chloride, 4,4'-(1,2-dicarbadodecaborane(12)-1,2-diyl)bis-,

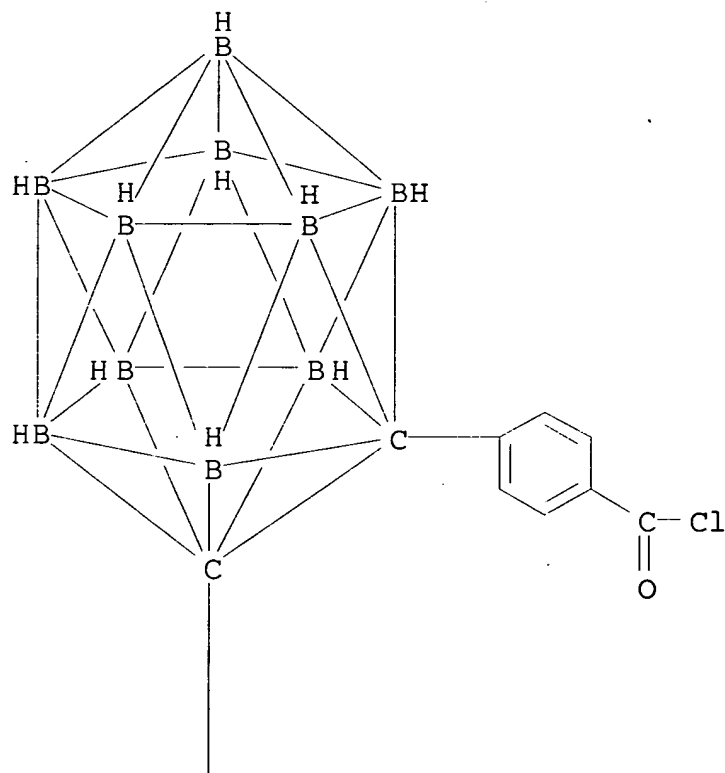
polymer with 4,4'-(9H-fluoren-9-ylidene)bis[phenol] (9CI) (CA INDEX NAME)

CM 1

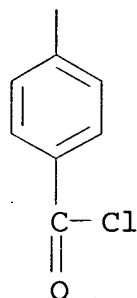
CRN 22761-52-0

CMF C16 H18 B10 Cl2 O2

PAGE 1-A

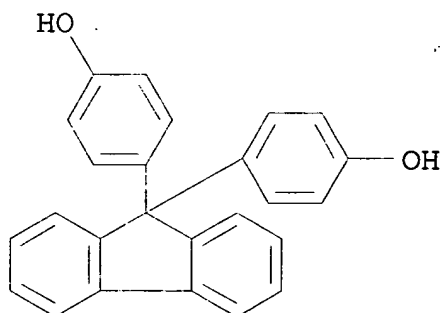


PAGE 2-A



CM 2

CRN 3236-71-3
CMF C25 H18 O2



IT 31073-67-3
(binders, for antifriction materials)

L46 ANSWER 25 OF 28 HCA COPYRIGHT 2005 ACS on STN
80:60379 Thermal degradation of aromatic carborane-containing polyamides. Balykova, T. N.; Gribkova, P. N.; Glivka, L. A.; Valetskii, P. M.; Vinogradova, S. V.; Korshak, S. V. (Inst. Elementoorg. Soedin., Moscow, USSR). Vysokomolekulyarnye Soedineniya, Seriya A, 15(11), 2441-5 (Russian) 1973. CODEN: VYSAAF. ISSN: 0507-5475.

AB The heat resistance of arom. polyamides was improved by introducing carborane groups; phenylcarborane groups led to greater heat resistance than carboxycarborane groups. The thermal degrdn. (200-900.deg., 1 hr) of polyamides contg. 1,2- or 1,7-diphenylcarborane groups was similar to that of polyamides from m-carboranedicarboxylic acid, but the beginning of intensive decompn. was shifted to higher temps. (300-350.deg.). The amide group in carborane-contg. polyamides had greater hydrolysis

resistance than in usual arom. polyamides and the o-carborane groups stabilized the amide bond to a greater extent than m-carborane groups. The polymers were obtained by polycondensation of 1,2-bis(p-chlorocarbonylphenyl)carborane [22761-52-0] or 1,7-bis(p-chlorocarbonylphenyl)carborane [22761-53-1] with 9,9-bis(p-aminophenyl)fluorene [15499-84-0].

IT 38720-86-4 51441-15-7
(heat resistance of)

RN 38720-86-4 HCA

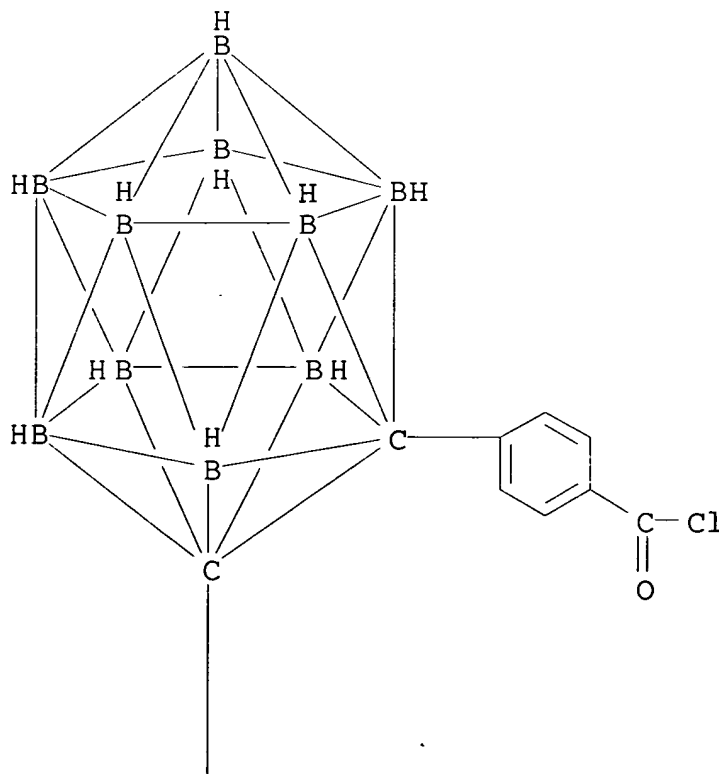
CN Benzoyl chloride, 4,4'-(1,2-dicarbadoecaborane(12)-1,2-diyl)bis-, polymer with 4,4'-(9H-fluoren-9-ylidene)bis[benzenamine] (9CI) (CA INDEX NAME)

CM 1

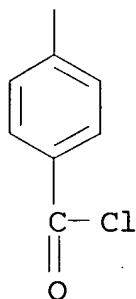
CRN 22761-52-0

CMF C16 H18 B10 Cl2 O2

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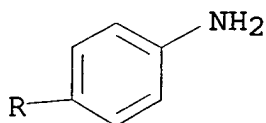
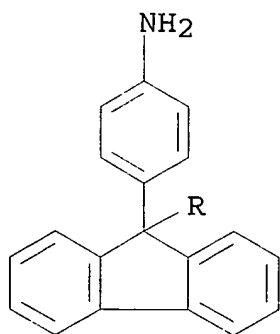
PAGE 2-A



CM 2

CRN 15499-84-0

CMF C25 H20 N2



RN 51441-15-7 HCA

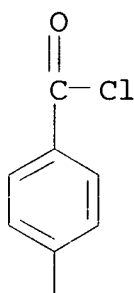
CN Benzoyl chloride, 4,4'-(1,7-dicarbadoecaborane(12)-1,7-diyl)bis-,
polymer with 4,4'-(9H-fluoren-9-ylidene)bis[benzenamine] (9CI) (CA
INDEX NAME)

CM 1

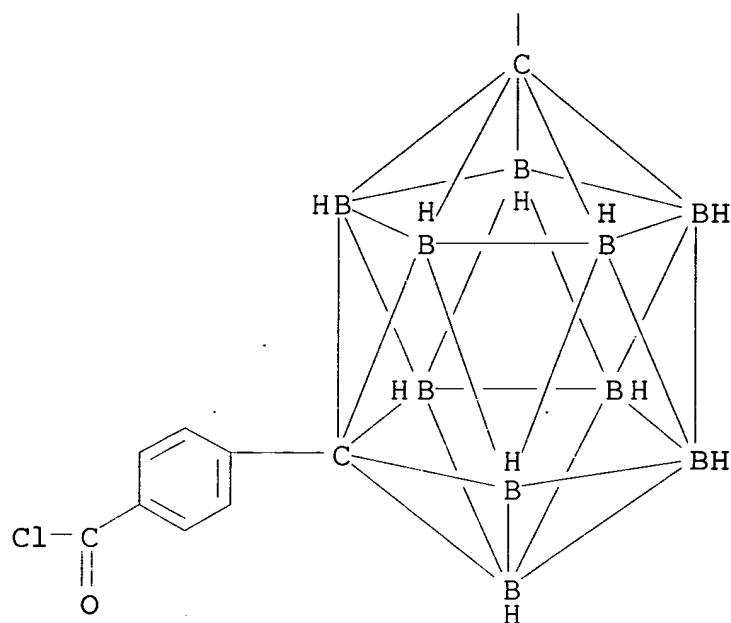
CRN 22761-53-1

CMF C16 H18 B10 Cl2 O2

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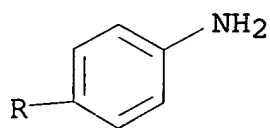
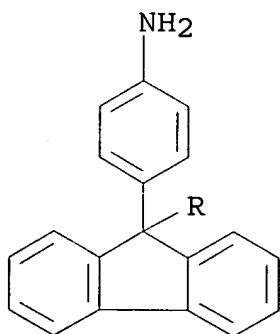
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CM 2

CRN 15499-84-0

CMF C25 H20 N2



IT 38720-86-4 51441-15-7
(heat resistance of)

L46 ANSWER 26 OF 28 HCA COPYRIGHT 2005 ACS on STN

79:19329 Effect of a carborane nucleus on the thermal stability of the ester bond in aromatic polyesters. Ayupova, R. S.; Zhuravleva, I. V. (Inst. Khim. Nauk, Alma-Ata, USSR). Izvestiya Akademii Nauk Kazakhskoi SSR, Seriya Khimicheskaya, 23(1), 78-81 (Russian) 1973. CODEN: IKAKAK. ISSN: 0002-3205.

AB The carborane nucleus exerted a stabilizing influence on the heat resistance of the ester bond in 1,2-bis[p-(chlorocarbonyl)phenyl] carborane - 9,9-bis(p-hydroxyphenyl)fluorene copolymer [39296-33-8], prepd. by low-temp. polycondensation of I and II in the presence of Et₃N. This influence was dependent on carborane concn. in the polymer chain and on degrdn. temp. In the temp. range .leq.350.deg., polyarylates contg. 10% carborane groups were most stable. At temps. > 400.deg., the heat resistance of the polymer was directly dependent on I concn.

IT 31073-67-3
(heat resistance of)

RN 31073-67-3 HCA

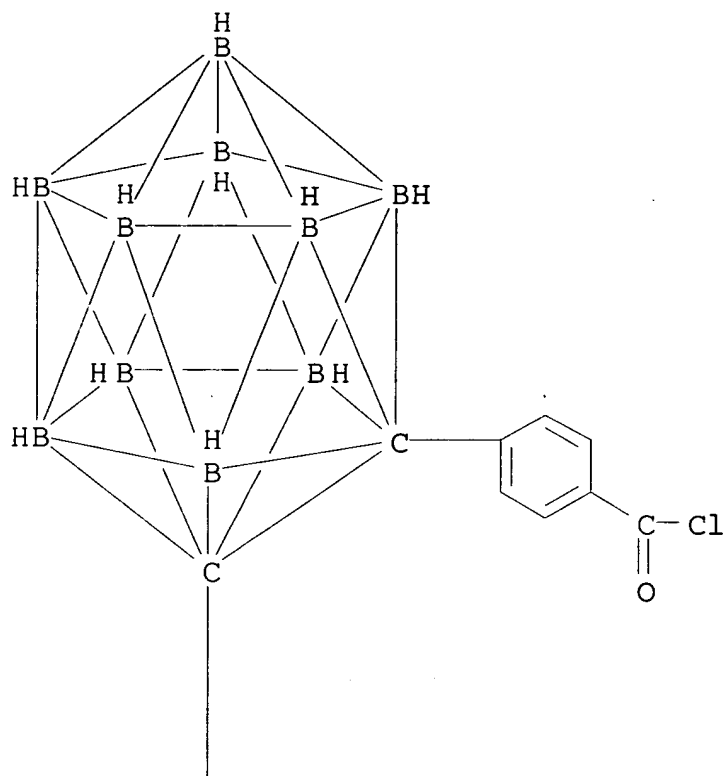
CN Benzoyl chloride, 4,4'-(1,2-dicarbadoecaborane(12)-1,2-diyl)bis-, polymer with 4,4'-(9H-fluoren-9-ylidene)bis[phenol] (9CI) (CA INDEX NAME)

CM 1

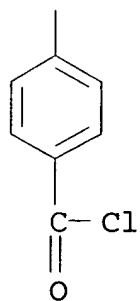
CRN 22761-52-0

CMF C16 H18 B10 Cl2 O2

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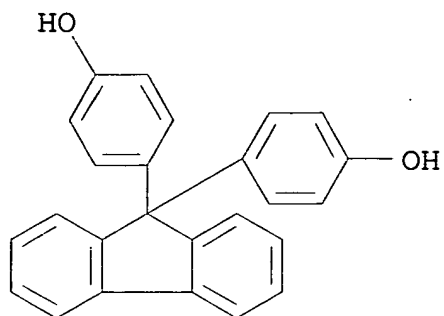


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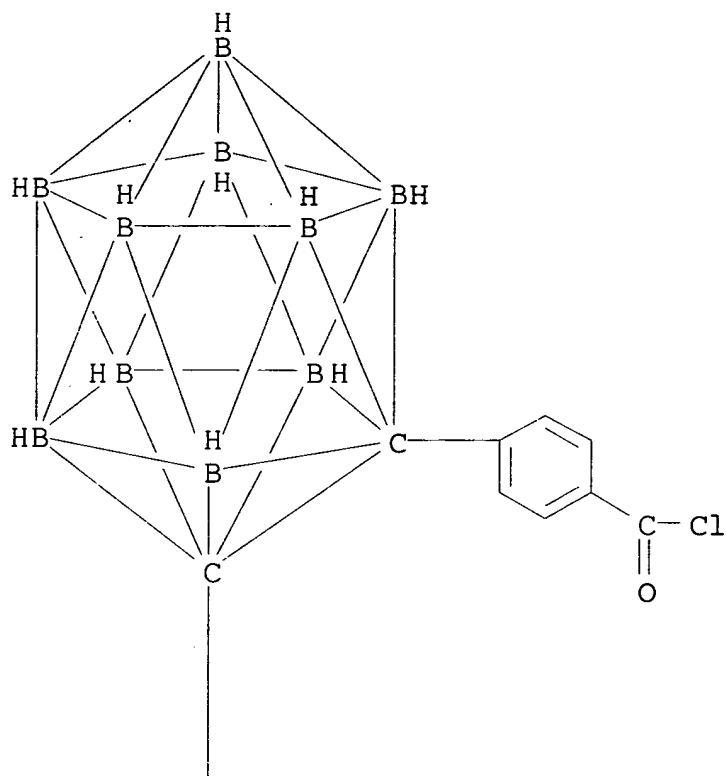
CM 2

CRN 3236-71-3
CMF C25 H18 O2

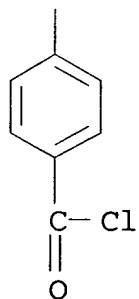


IT 32505-93-4
 (heat resistance of, compn. effect on)
 RN 32505-93-4 HCA
 CN 1,4-Benzenedicarbonyl dichloride, polymer with 4,4'-(1,2-dicarbadodecaborane(12)-1,2-diyl)bis[benzoyl chloride] and 4,4'-(9H-fluoren-9-ylidene)bis[phenol] (9CI) (CA INDEX NAME)
 CM 1
 CRN 22761-52-0
 CMF C16 H18 B10 Cl2 O2

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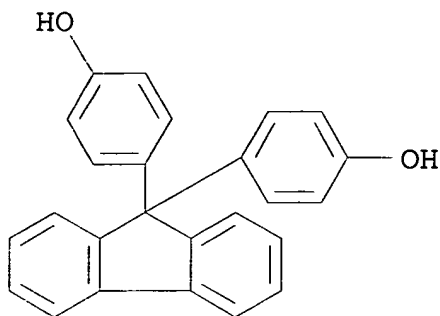


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CM 2

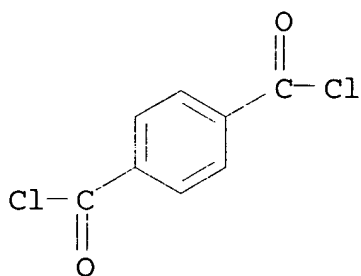
CRN 3236-71-3
CMF C25 H18 O2



CM 3

CRN 100-20-9

CMF C8 H4 Cl2 O2



IT 31073-67-3

(heat resistance of)

IT 32505-93-4

(heat resistance of, compn. effect on)

L46 ANSWER 27 OF 28 HCA COPYRIGHT 2005 ACS on STN

74:76781 Thermal degradation of polymers containing 1,2-bis(p-carboxyphenyl)-o-carborane [1,2-bis(p-carboxyphenyl)dicarboclosododecaborane]. Rafikov, S. R.; Zhuravleva, I. V.; Ayupova, R. S.; Kalachev, A. I.; Valetskii, P. M.; Stanko, V. I.; Vinogradova, S. V.; Korshak, V. V. (Inst. Elementoorg. Soedin., Moscow, USSR). Doklady Akademii Nauk SSSR, 195(6), 1351-4 [Chem] (Russian) 1970. CODEN: DANKAS. ISSN: 0002-3264.

AB Polymers, contg. 1.5-1.7% water, prepd. by condensing the dichloride of the title monomer (I), 9,9-bis(p-hydroxyphenyl)fluorene (II) and terephthalic acid dichloride (III) in 0.1-1:1:0-0.9 molar ratio in acetone in the presence of Et3N, had increasing thermal stability with increasing I content and better thermal stability than a II-III copolymer (IV) at 450-550.degree. in vacuo; but the stability order was reversed at <450.degree.. Possibly at 500.degree., in the polymers contg. I, the o-car-borane ring rearranges to the more

stable m-carborane. For copolymers contg. I, rate of destruction vs. extent of decompn. (wt. loss) curves generally showed max., esp. at 550.degree.; whereas the curves of IV did not. Apparent activation energies of the copolymers contg. higher amts. of I were significantly higher at 550.degree. than those at 450.degree., which was not obsd. for IV. The decompn. at lower temps. had a hydrolytic character and at higher temps., homolytic. In the volatile decompn. products, H predominated over CO₂ and CO, whereas the loss of H was much less from IV. The presence of biphenyl, BzOH, phenol, benzene, and toluene in the decompn. products supported the homolytic mechanism.

IT 31073-67-3 32505-93-4

(thermal stability of, structure in relation to)

RN 31073-67-3 HCA

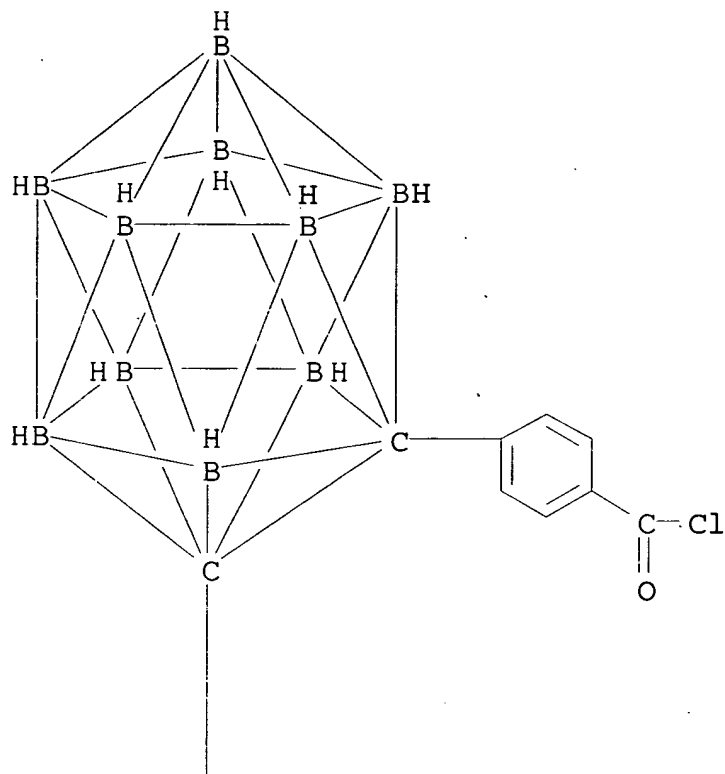
CN Benzoyl chloride, 4,4'-(1,2-dicarbadoecaborane(12)-1,2-diyl)bis-, polymer with 4,4'-(9H-fluoren-9-ylidene)bis[phenol] (9CI) (CA INDEX NAME)

CM 1

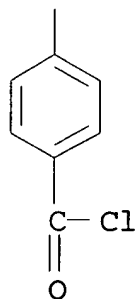
CRN 22761-52-0

CMF C16 H18 B10 Cl2 O2

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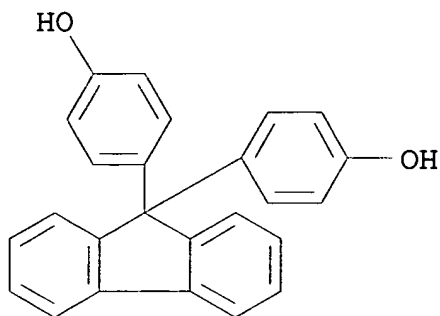


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CM 2

CRN 3236-71-3
CMF C25 H18 O2



RN 32505-93-4 HCA

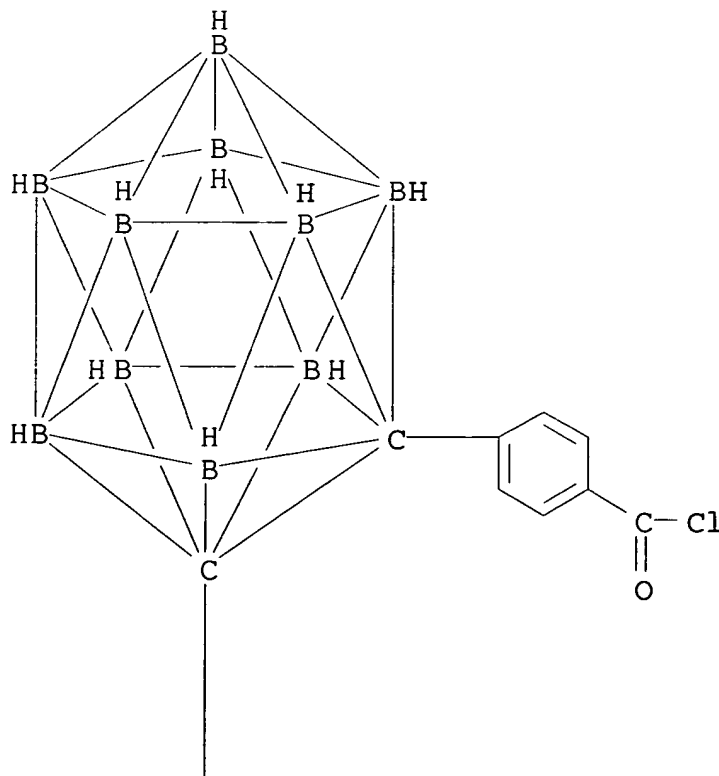
CN 1,4-Benzenedicarbonyl dichloride, polymer with 4,4'-(1,2-dicarbadodecaborane(12)-1,2-diyl)bis[benzoyl chloride] and 4,4'-(9H-fluorene-9-ylidene)bis[phenol] (9CI) (CA INDEX NAME)

CM 1

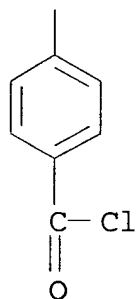
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CMF C16 H18 B10 C12 O2

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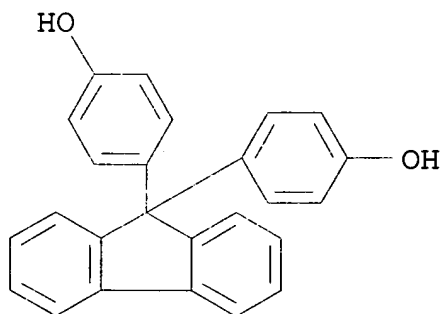


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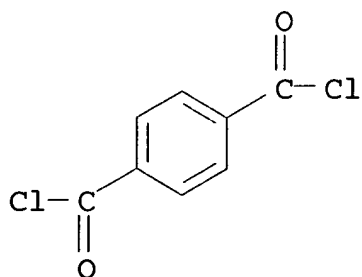
CM 2

CRN 3236-71-3
CMF C25 H18 O2



CM 3

CRN 100-20-9
CMF C8 H4 Cl2 O2



IT 31073-67-3 32505-93-4

(thermal stability of, structure in relation to)

L46 ANSWER 28 OF 28 HCA COPYRIGHT 2005 ACS on STN

73:110190 Synthesis and behavior of polyamides and polyesters based on 1,7-dicarbododecaborane(12)-1,7-bis(carbonyl chloride). Korshak, V. V.; Bekasova, N. I.; Komarova, L. G. (Inst. Elementoorg. Soedin., Moscow, USSR). Vysokomolekulyarnye Soedineniya, Seriya A, 12(8), 1866-71 (Russian) 1970. CODEN: VYSAAF. ISSN: 0507-5475.

AB 1,7-B10H10(CCOCl)2 (I) was condensed in THF at room temp. with 8 aromatic diamines and With H2N(CH2)6NH2. The resulting polyamides were sol. in org. solvents and formed strong transparent films from THF solns. These polymers underwent thermal oxidn. in air at 200-50.degree., but were stable to 1000.degree. in an inert atm. I condensed with phenolphthalein, p-(HOC6H4)2CMe2, p-C6H4(OH)2, HO(CH2)6OH, HOCH2CH2OH and 9,9-bis(4-hydroxyphenyl)fluorene under the same conditions. The resulting polyesters were sol. in org. solvents, and were stable toward thermal oxidn. in air up to .apprx.300.degree..

IT 28453-95-4

(thermal stability of)

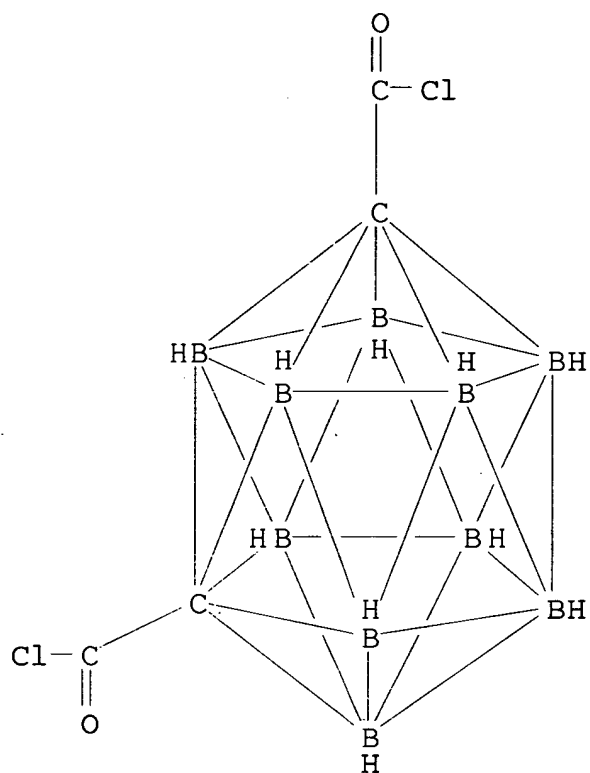
RN 28453-95-4 HCA

CN 1,7-Dicarbododecaborane(12)-1,7-dicarbonyl chloride, polyester with 4,4'-fluoren-9-ylidenediphenol (8CI) (CA INDEX NAME)

CM 1

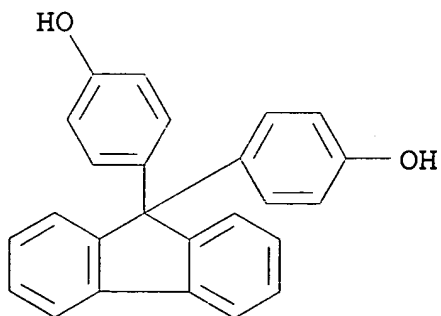
CRN 23810-52-8

CMF C4 H10 B10 Cl2 O2



CM 2

CRN 3236-71-3
CMF C25 H18 O2



IT 28453-95-4
(thermal stability of)